

White Paper of the Body of Knowledge Task Force of the American Society of Safety Engineers Council on Practices and Standards

Approved by the ASSE Board of Directors

June 2003

NOTICE: the American Society of Safety Engineers (ASSE) Council on Practices and Standards (CoPS) produced The Body of Knowledge report, white paper, and set of recommendations. CoPS provides technical insight and expertise to ASSE's membership, addressing the practice of the safety profession, its specific disciplines, and the standards of practice impacting its members and the general public.

CoPS is structured to provide balanced and sound assessment of matters related to the effectiveness and efficiency of the standards of practice in the Safety, Health, and Environmental (SH&E) profession. CoPS consulted with many organizations, entities, and governmental agencies while developing this white paper, however, it has not been reviewed by any entity other than ASSE. The contents of this white paper, and its recommendations, do not represent the views of any organization other than ASSE. The mention of trade names, companies, or commercial products does not constitute a recommendation or endorsement for their use.

The information and materials contained in this publication have been developed from sources believed to be reliable. However, ASSE accepts no legal responsibility for the correctness or completeness of this material or its application to specific factual situations. By publication of this white paper, ASSE does not ensure that adherence to these recommendations will protect the safety or health of any persons or preserve property.

Contents

Abstract	3
Introduction.....	4
What is ASSE?.....	4
The Education of the Safety Professional.....	5
Background Research into the Current State of the Body of Knowledge Components	6
Project Purpose	7
Project Scope	8
Project Background.....	8
Defining the Body of Knowledge References	8
Task Force Established	9
Task Force Mission and Vision for the Project	9
Methodology and Survey Design.....	10
Review of the Literature	10
Pilot Survey.....	11
Beta Survey.....	11
Beta Survey Response and Refinement of the Survey Instrument	12
Member Survey.....	12
Survey Results	12
Codes, Regulations, and Standards.....	13
Texts, References, and Research Publications.....	13
Noncommercial Websites	13
Journals and Periodicals.....	14
“Classic” Texts (initial publication date of 1974 or earlier).....	14
Findings and Recommendations.....	15
The Survey Methodology and Instrument	15
Survey Results	15
Recommendations.....	16
Appendix A: Survey Respondent Demographics	17
Appendix B: Additionally Cited Materials.....	22
Appendix C: Body of Knowledge Task Force Members.....	26

ABSTRACT

The American Society of Safety Engineers (ASSE) Council on Practices and Standards (CoPS) was asked by the ASSE Board of Directors to play a more strategic and visionary advisory role in June 1998 as steward of the professional Body of Knowledge (BoK), with a focus on the goal of providing a reference to support the continuous enhancement of the profession.

While the definition of the Body of Knowledge of the safety, health, and environmental (SH&E) profession has not as yet been consolidated into one document, it can generally be defined as including the following elements:

- Standards used to accredit SH&E curriculum for colleges and universities
- ASSE published documents and materials used to describe the scope and functions of the professional SH&E position
- Requirements for certification or licensure as an SH&E professional, as currently stated by the Board of Certified Safety Professionals
- The ASSE Code of Professional Conduct
- SH&E regulations, standards, and other legislation that define SH&E compliance
- Publications, books, and materials used by SH&E professionals to implement effective SH&E management programs

A listing of the publications, books, and materials used by SH&E professionals to implement effective SH&E management programs had not been previously developed and published. To move towards a more complete definition of the SH&E Profession's Body of Knowledge, CoPS agreed to review, recommend, and identify existing trends and issues relevant to the Body of Knowledge; to define the baseline listing of references that is one key component of the overall Body of Knowledge, and to provide some general recommendations of areas for enhancement, related to the baseline reference listing and the overall definition of the Body of Knowledge, over the next five to ten years. CoPS appointed a Body of Knowledge Task Force whose focus was development of this baseline reference listing to support the continuous enhancement of the profession. The Task Force completed its work and presented a report to CoPS in May 2002. The BoK report was approved by CoPS and presented to the ASSE Board of Directors in June 2002.

A scientific approach was used by the Task Force to conduct an extensive literature search and review. A series of surveys was initiated to capture the preliminary components of the SH&E Body of Knowledge Reference Listings. The format of the surveys allowed the Task Force to analyze the common core practices of the profession as well as those areas that are particular to an industry segment. To test the approach, the Task Force held several working meetings of volunteer experts to create areas of expertise, developed a small pilot survey to be used to perform a Beta survey during the fall of 2001, and then conducted a random survey of the general membership. The results, analysis, and recommendations are included as an appendix to this paper.

Understanding the common references used by current SH&E professionals can improve the consequences of future social, economic, and technological changes to help SH&E professionals make informed and strategic decisions. Consequently this white paper recommends a comprehensive, continuous and institutionalized scanning process to identify emerging trends and issues impacting the Body of Knowledge References and will assist in protection of people, property, and the environment.

CoPS recommends that ASSE senior leadership use the report and this white paper as part of their strategic planning. More can be done to institutionalize analysis of the Body of Knowledge into the ASSE strategic planning process. This effort will require the dedication of staff and resources to make the Body of Knowledge an ongoing ASSE priority. This report identifies the current materials that comprise the “References” portion of the SH&E Body of Knowledge and includes recommendations to improve ASSE's ability to provide technical expertise and insight to its members. These recommendations include:

- Create an ongoing review process that involves all major parts of ASSE in identifying sound SH&E practices for inclusion in the Body of Knowledge Reference Listings and make the findings available for use throughout the Society and its membership
- Support the ongoing work of enhancing the Body of Knowledge Reference Listings
- Incorporate future Body of Knowledge Reference Listings analysis into ASSE strategic planning

INTRODUCTION

What is ASSE?

The American Society of Safety Engineers (ASSE) was founded October 14, 1911, in New York City, with 62 members. Originally named the United Society of Casualty Inspectors, its philosophy was to promote harmonious action in safety work and educate members in all matters relating to industrial safety and accident prevention. Throughout its growth, ASSE, a non-profit organization, has dedicated itself to advancing the safety, health, and environmental (SH&E) profession and enhancing the knowledge and capabilities of SH&E practitioners.

ASSE now has over 30,000 members and is the world's oldest and largest professional SH&E organization. ASSE is a global organization that works to advance the technical, scientific, managerial, and ethical knowledge and skills of occupational safety, health and environmental professionals. It is committed to protecting people, property, and the environment. ASSE provides such services as education, public affairs, government affairs, and involvement in national and international SH&E standards development, technical publications, and timely and ongoing communications on SH&E advancements worldwide.

ASSE is secretariat for eight (8) American National Standards Institute (ANSI) committees and projects, which include:

- A1264 on Walking/Working Surfaces
- Z15 on Motor Vehicle Fleet Safety
- Z87 on Eye and Face Protection
- Z117 on Confined Space
- Z359 on Fall Protection
- Z390 on Hydrogen Sulfide Safety Training
- Z490 on Safety, Health and Environmental Training

ASSE is also the secretariat for the Z590 project on Competence in the Safety Profession and is the Administrator for the US Technical Advisory Group to the International Organization for Standardization (ISO) on fall protection standards. ASSE members also serve on more than 40 other SH&E standards committees.

Through its 13 Practice Specialties, ASSE offers professional development opportunities and technical assistance to members and non-members. Current Practice Specialties are academics, construction, consulting, engineering, environmental, healthcare, industrial hygiene, international, management, mining, public sector, risk management/insurance, and transportation. The Practice Specialties serve as forums for discussion of best practice strategies and research; influence relevant programs for professional certification, ASSE chapter-based programs and ASSE technical standards development; and support advocacy efforts for occupational safety, health and environmental leadership.

ASSE currently has 149 chapters, 56 sections, and 64 student sections within its eight regions. There are members in 64 countries.

The Education of the Safety Professional

Prior to the passage of the Occupational Safety and Health (OSH) Act of 1970 there were few college or university safety courses or degree programs available for those entering the safety profession. Historically, only minimal information has been available on the duties, qualifications, and present and future skills required by private sector or governmental entities.

While a number of individuals had received their early training in the traffic safety field, especially the college and university teaching staffs in the 1970s and 1980s Occupational Safety and Health degree programs, the OSH Act increased the need for additional occupational safety personnel, especially Occupational Safety and Health Administration (OSHA) compliance officers. The OSH Act states "Education programs to provide an adequate supply of qualified personnel shall be implemented directly or by grants and contracts."

Since 1970, there has been a significant growth in the number of academic degree programs in SH&E and other related areas such as hygiene, fire science, environmental and engineering. At

the present time, there are 10-20 institutions offering a degree in Safety at the Associate Degree level, over 40 institutions Bachelor of Science degrees, and 10-15 offering degrees at the Masters level. Very few programs are available that offer doctorate level degrees in safety.

The curriculum material is generally very similar in the academic degree programs in safety. Typical subject areas include management, fire, legislation, hygiene, environment, engineering, training, principles, science, and math. In addition, some areas have been expanded to include human resources, strategic thinking, labor relations, motivational or behavioral techniques, economics, cost analysis, stress management, wellness, and financial responsibility.

It should also be noted that during the 1960s, 1970s, and 1980s, there were few books or other SH&E material available for use by students or SH&E practitioners pertaining to occupational safety and health. Much had to be developed in the SH&E curriculum and resource area to meet the needs of these academic degree programs and the SH&E profession. In 1987, ASSE began the accreditation process for institutions offering academic programs in safety at the undergraduate and graduate level. This activity was expanded and, today, 10-15 degree programs have received accreditation recognition. The curriculum standards applied to accreditation have been revised and updated to include a variety of subject areas.

Accreditation criteria have changed from subject matter content to outcome-based activity. The major outcome criteria include a baseline understanding of math and science; analysis and interpretation of data; anticipating, identifying, and evaluating hazards; developing hazard control design, methods, procedures, and programs; function of multi-disciplinary teams and group activities; understanding SH&E professional responsibilities; knowledge of contemporary SH&E issues in global and societal contexts; communication skills; and training skills. At the present time, ASSE and the American Board of Engineering Technology are providing safety accreditation.

Background Research into the Current State of the Body of Knowledge Components

ASSE staff reviewed different sources of information to research how other professional organizations have attempted to identify their body of knowledge via specific sources of information and titles of publications/materials. 375 sites of recognized professional organizations were reviewed, (e.g., American Bar Association, American Medical Association). A summary of how these professional organizations defined their professional body of knowledge follows

- *Curriculum from accredited colleges and universities awarding degrees in the discipline: (135 organizations, 36%):* Examples include many of the professional engineering and technical societies and associations, together with the legal and medical professions as it is generally not possible to work in these professions if a person has not earned an appropriate degree from an accredited college/university
- *Licensing/certification requirements: (94 organizations, 25%):* Examples include engineering, nursing, and medicine

- Detailed descriptions from professional associations and societies of their members' professional responsibilities, scope, and function: (112 organizations, 30%): Numerous examples were cited of professional business and industry groups such as financial planners, investment professionals, and management consultants
- Professional associations or societies that discuss their respective Body of Knowledge, but do not make any attempt to explain it or define it (35 organizations, 9%)

ASSE has materials in each of these general areas listed above:

- *Curriculum standards in safety education through the Accreditation Board for Engineering and Technology (ABET)*: The Educational and Standards Committee (ESC) establishes such standards through ABET after approval by the ASSE Board of Directors. These standards are considered to be a component of the SH&E Professional Body of Knowledge, which must be taught to those students seeking degrees in safety.
- *“Scope and Functions of the Professional Safety Position”, first published by ASSE in 1976*: ASSE is the secretariat of the American National Standard Institute's Committee (ANSI) Z590.2-2002 Scope and Functions of the Professional Safety Position
- *Accredited certification programs*: ASSE supports programs such as the Board of Certified Safety Professionals (BCSP), which develops and administers examinations testing an SH&E professional's Body of Knowledge and provides the Certified Safety Professional designation; the Institute of Hazardous Materials Management's Certified Hazardous Material Manager (CHMM) designation, and the American Board of Industrial Hygiene (ABIH) Certified Industrial Hygienist (CIH) designation are examples of quality SH&E certifications
- *Code of Professional Conduct*: with its associated Professional Conduct Committee, published by ASSE

ASSE has historically been a powerful force in the development, maintenance, and enhancement/improvement of the body of knowledge used by SH&E professionals. There is strong consensus among ASSE leadership that significant portions of our body of knowledge continue to evolve. For this reason the ASSE Board of Directors specifically cited stewardship of the Body of Knowledge as one of the Society's strategic goals.

PROJECT PURPOSE

The American Society of Safety Engineers (ASSE) Council on Practices and Standards (CoPS) was directed to address the issue of a Body of Knowledge (BoK) Reference for the safety, health and environmental (SH&E) profession, establish a Task Force responsible for defining the BoK References in the SH&E profession, and identify those resources needed for the prevention of injury, illness, death, and the prevention of destruction of property and the environment.

PROJECT SCOPE

The scope of the project was defined to include completion of an ASSE member survey and subsequent compilation of the results and preparation of a white paper to be made available to ASSE members. The surveys focused on collecting information regarding the respondents' accessed and owned materials currently comprising their professional library. These materials included codes, standards and regulations; texts, reference and research materials published after 1974; classic texts published prior to 1975; non-commercial web sites; and SH&E-related journals and periodicals. Additionally, the survey collected information regarding how the respondents' body of knowledge was acquired and how the respondents distributed and disseminated their body of knowledge to educate others. To validate the information gathered and assist in future analysis, demographic information was also collected from respondents. The respondents were allowed to add to the resource lists and were asked to comment about the survey process.

PROJECT BACKGROUND

Defining the Body of Knowledge References

The BoK References of the SH&E profession are a collection of commonly-used, general and specific references and information sources which cover the theory, principles and practice in the broad field of loss prevention and control. Utilizing the results of a series of member surveys, the BoK Task Force identified a library of various materials as the baseline SH&E BoK References. This library includes codes and standards published by government agencies; texts and manuals by organizations and individual authors, including "classic" texts authored prior to 1975; noncommercial web sites and Internet references; and journals and periodicals.

During the fall 1998 meeting of the ASSE Strategic Planning Committee, a discussion ensued regarding the Body of Knowledge for the SH&E profession. The ASSE Restructure Process in the mid-1990s tasked CoPS as the "keeper of the flame" for the Body of Knowledge, within the context of maintaining and cataloging the library of reference texts, books, materials, and media for general SH&E practice; and additional references and texts for the practice specialties. As the discussion continued, it became apparent that the Body of Knowledge for the SH&E Profession had not been specifically defined by the Society membership itself.

A review of other professional societies' member services found various papers, lists and web sites containing both a description of their professional body of knowledge and the sources of knowledge for professional practice. Bob Semonisck, EdD, CSP, noted that ASSE uses the term "Body of Knowledge" extensively in such documents as its mission statement and its Scope and Functions of the Safety Professional document. ASSE members made the Board of Directors aware of the need for a baseline or source reference document, establishing the SH&E Body of Knowledge References, that could be used as a reference for individuals entering the profession, a consulting resource list for practitioners and non-practitioners, and a citation source for expert witness testimony.

The Strategic Planning Committee felt it was time for ASSE to poll its own membership and determine what the SH&E practitioner views as the current SH&E Body of Knowledge References. In June 1999, at the Baltimore Professional Development Conference, CoPS sponsored a roundtable discussion on this topic and received input from over 150 participants. The participant input included definitions of the SH&E profession's Body of Knowledge References and suggestions for member-driven methods to better define and quantify it.

The consensus definition developed during this roundtable discussion was:

The Body of Knowledge References of the SH&E Profession are a collection of commonly used general and specific information on the safety, health, and environmental theory, principles, and practice in the broad field of loss prevention and control.

The participants also suggested that the best method to begin the process of gathering general information was to poll the membership directly through a formal survey process. The suggested next step was to compare and combine the baseline survey results with other sources of knowledge such as academic programs and certification processes.

Task Force Established

CoPS Vice President, Kathy Seabrook, CSP, RSP, appointed the Body of Knowledge Task Force, which included representatives from each Council, to begin the process of defining the Body of Knowledge References for the SH&E profession. The project was officially launched in fall 1999 with the preparation of a formal project plan and timeline.

Task Force Mission and Vision for the Project

To guide the activities of the Task Force and complete the two primary objectives of the project – a member survey and white paper – vision and mission statements were prepared. Each Task Force member presented a personal vision for the outcome of the project:

- Assure perspective and use at the ground level (i.e., the sources of information used in addressing day-to-day issues faced by all levels of SH&E professionals)
- Capture the SH&E generalist's Body of Knowledge References and develop consensus on appropriate specialty categories
- Ensure resulting information is accessible to ASSE members and to the public
- To understand the Body of Knowledge References for the "work" aspect of the profession (e.g., not necessarily the academic)
- Develop and maintain reference material and information that is relevant to today and renewed at least every 5 years (i.e., a document that keeps up with the profession)
- Provide a means to have the resulting information user-friendly and available
- Establish a living document that keeps up with the profession

These individual statements were consolidated into the following vision and mission statements for the Task Force:

Our vision is to permanently establish a resource on safety, health, and the environment known as the Body of Knowledge References for the SH&E profession.

Our mission is to gather, establish, communicate, and maintain the SH&E Body of Knowledge References as the resource of choice on safety, health and environmental issues and topics for professionals, non-practitioners, and other interested parties.

METHODOLOGY AND SURVEY DESIGN

The project methodology consisted of seven specific steps:

- Literature research to identify resources and materials for inclusion in a survey
- Creation of a pilot survey requesting and utilizing insight from a selected group of SH&E professionals recommended by Task Force members
- Incorporation of the pilot survey results by a contracted consultant into an online beta survey
- Analysis of the beta survey results to develop the preliminary benchmark
- Revise final survey to correct issues identified in the beta survey
- Conduct the final survey via a randomly selected population of ASSE members
- Analyze and publish survey results

Review of the Literature

As part of the development of the evaluation process, the Task Force reviewed a number of different references including:

- Institutional research about America's universities and colleges
- BoK assessment literature
- Existing survey literature addressing BoK measurement and analysis
- History of ASSE and other similar SH&E organizations
- Critiques of rating procedures and methodologies in this area and elsewhere

After a review of the literature, the BoK Task Force did not find an existing appropriate model for assessing BoK quality. There was a strong consensus among Task Force members that no single measure would capture all facets of the SH&E BoK. Additionally, there was strong consensus regarding the essential measures and additional dimensions were to be incorporated in the survey preparation process.

The literature reviewed assisted the Task Force in compiling a list of variables for future considerations. The literature research also indicated that most BoK Reference activities are generally dedicated to preparing curriculum standards for colleges and universities or certification and licensure activities. The reputation of the professional organization has been the traditional measure most accepted by the public.

Pilot Survey

The methodology used by the BoK Task Force to rate potential sources of knowledge and information used by SH&E professionals began with the review of relevant literature, based on the goal of developing a defensible framework for establishing measures of BoK Reference quality. The ratings were developed for use by SH&E professionals with more than three years of experience. As the proportion of students attending SH&E degree-granting institutions grows, ASSE may want to consider developing a separate rating system and publishing a separate guide for students.

The Task Force determined a pilot survey would provide the best method for obtaining a list of the resources from the various media that would comprise the beta survey. As efforts were made to have the Task Force membership reflect the various specialties within the Society, this initial list of pilot survey participants represented a cross-section of experience and areas of focus with the profession. Each Task Force member, plus three Society members selected by the Task Force member, were requested to prepare a list of references that would fall within the scope of the SH&E Body of Knowledge, as defined previously. This provided approximately 36 potential respondents.

The format of the pilot survey was a template spreadsheet document that listed the type of information the Task Force was requesting for each of the references that the respondent would list. It did not include any references as a starting list. Respondents needed to inventory their personal library of materials and rank them by frequency of use.

The Pilot survey resulted in a list of over 300 separate items that were tallied and ranked. The list was pared to 14 codes, standards and regulations; 100 text, reference and research items; 36 web sites; 20 journals and periodicals; and 15 “classic” texts.

Beta Survey

The Task Force then developed a web-based beta survey to test the proposed web-based membership survey instrument, further refine the demographic categories, and hone the listed references and selections. A third-party vendor was contracted to develop the beta survey program and host it on the Internet, creating a link to the ASSE web site.

The beta survey consisted of 21 measures (questions) and included the ability to submit additional comments. The data sources for these measures were provided directly by members and other SH&E professionals. The beta survey was distributed to a pre-selected list of ASSE members. The selection process emphasized members in academia, consulting, and senior management positions and included all Board Members, Councils, Committees, Chapter Presidents, and ASSE members with long histories of performance excellence (i.e. ASSE

Fellows and other Society-wide award winners). The assumption of the Task Force was that these SH&E professionals would be in the best position to evaluate the measures and then provide appropriate data for comparison to a randomly selected population.

Beta Survey Response and Refinement of the Survey Instrument

The beta survey was completed using a hard-copy format. Beta survey respondents were specifically requested to provide not only the requested information regarding their personal Body of Knowledge References, but also feedback on the design of the survey instrument and the survey process. This feedback allowed the Task Force and vendor to further refine the online member survey instrument and process.

The Task Force received 107 responses to the beta survey. The beta survey results were used to further refine and debug the survey instrument. Additionally, the survey instrument and process was streamlined with input from the Task Force and vendor. The member survey was then prepared.

Member Survey

The Random Member Survey went "live" on the web in late December 2001 and closed in late January 2002. Of the more than 4,900 randomly – selected ASSE members, 577 responded, providing the Task Force with a valid, representative sample and data. Over half of the respondents provided comments and feedback on the survey.

The random population of survey participants was not a controlled subset, but analysis of the demographics of the respondents confirmed the population accurately reflected the total ASSE membership (see Appendix A). The randomly selected survey recipients were contacted via electronic mail. The survey itself was conducted via the ASSE website. This use of electronic methodology was not considered to be a factor in biasing the sample population as the demographics of ASSE indicate that in excess of 80% of all ASSE members have access to the Internet. To complete the survey, a participant was required to have an access control number and be able to navigate the website.

SURVEY RESULTS

As the final product of this Task Force is intended to be a useable list of materials that comprise the baseline references of the SH&E profession's Body of Knowledge, the results are listed in a concise and categorized format. In general, each category has a listing of frequently recommended materials – our "top ten" list – and additional materials that, while included in the Body of Knowledge References of more than one respondent, may be more focus on a specialized topic or be of use in a particular industry sector. The most frequently cited materials – identified by at least 10% of the survey respondents – are included here – listed alphabetically within their category. Additional, less frequently – cited materials, identified by less than 10% of respondents, are included in Appendix B.

Codes, Regulations, and Standards

- American National Standards Institute (ANSI) Standards
- National Fire Protection Association (NFPA) Standards
- State Occupational Safety and Health Administration (OSHA) Codes
- 40 CFR Protection of the Environment - US Environmental Protection Agency
- 49 CFR Transportation - US Department of Transportation
- 29 CFR 1910 Occupational Safety and Health Standards - US Department of Labor, OSHA
- 29 CFR 1926 Safety and Health Regulations for Construction - US Department of Labor, OSHA

Texts, References, and Research Publications

- Accident Facts (National Safety Council)
- Accident Prevention Manual (National Safety Council)
- Behavior-Based Safety Process (Krause)
- Best's Safety Directory (A.M. Best Co.)
- Chemistry of Hazardous Materials (Meyer)
- Emergency Response Guidebook (US Department of Transportation)
- Ergonomics: A Practical Guide (National Safety Council)
- Fire Protection Handbook (NFPA)
- Fundamentals of Industrial Hygiene (National Safety Council)
- Guide to Respiratory Protection (National Institute for Occupational Safety and Health)
- Industrial Ventilation (American Conference of Governmental Industrial Hygienists)
- OSHA 500 Construction Training Materials (US Department of Labor)
- Pocket Guide to Hazardous Chemicals (National Institute for Occupational Safety and Health)
- Supervisors Safety Manual (National Safety Council)

Noncommercial Websites

- American Industrial Hygiene Association (www.aiha.org)
- American National Standards Institute (www.ansi.org)
- American Society of Safety Engineers (www.asse.org)
- Bureau of Labor Statistics (www.bls.gov)

- Centers for Disease Control and Prevention (www.cdc.gov)
- National Fire Protection Association (www.nfpa.org)
- National Institute for Occupational Safety and Health (www.niosh.gov)
- National Safety Council (www.nsc.org)
- US Department of Labor (www.dol.gov)
- US Department of Transportation (www.dot.gov)
- US Environmental Protection Agency (www.epa.gov)
- US Occupational Safety and Health Administration (www.osha.gov)

Journals and Periodicals

- American Industrial Hygiene Association (AIHA) Journal
- Compliance Magazine
- Industrial Safety and Hygiene News
- National Fire Protection Association (NFPA) Journal
- Occupational Hazards Magazine
- Occupational Health and Safety Magazine
- OSHA Reporter (Bureau of National Affairs)
- Professional Safety
- Safety and Health

“Classic” Texts (initial publication date of 1974 or earlier)

- Accident Prevention Manual for Industrial Operations, 1st edition (National Safety Council)
- Fundamentals of Industrial Hygiene, 1st edition (National Safety Council)
- Industrial Accident Prevention (Heinrich)
- Occupational Safety Management / Engineering, 1st edition (Hammer)
- Patty's Industrial Hygiene and Toxicology, 1st edition (Clayton)
- Safety Management, 1st edition (Simonds and Grimaldi)
- Silent Spring, 1st edition (Carson)
- Techniques of Safety Management, 1st edition (Peterson)

FINDINGS AND RECOMMENDATIONS

The Survey Methodology and Instrument

ASSE should continue its efforts to obtain empirical ratings on the value of different measures for measuring the quality of this baseline SH&E Body of Knowledge Reference Listing. This can be addressed by adding a section to future questionnaires asking for feedback and data in order to get ratings on the utility of different measures, both those currently used and possible additions that have been suggested by critics or derived from future literature review. As part of any future survey, ASSE should consider as many reasonable new measures as possible.

When a revised rating methodology is adopted, or the current one affirmed, the ratings should be reported as a three-year moving average to smooth out short-term fluctuations, random errors in reporting, or other factors that might cause unbelievably large movements in rankings for particular measures.

Once ASSE settles on a methodology, it should remain constant unless there is compelling evidence for change. It would be wise to have an outside body review the methodology once every five to seven years, but the presumption should be against change unless there is strong evidence of change in validity of the measures.

During the next revision, it would be appropriate for a body of outside experts to meet with the BoK Task Force to discuss possible refinements or revisions to the ratings system. Such a group could give ASSE valuable outside advice and evaluate criticism from interested parties.

Survey Results

The end result of the survey is the baseline listing of the SH&E Profession's Body of Knowledge References – the compilation of the materials listed above. The initial design of the project included gathering more detailed description of the manners in which members used the materials they identified in their personal Body of Knowledge reference listing and also allowed for detailed classification of each listed reference. It became apparent that due to the diverse nature of the SH&E profession, such detailed information should not be gathered as part of this initial, baseline survey. The project was refocused to gather the listing of references currently used by respondents on a day-to-day basis, regardless of the media.

The survey data supports ASSE's Strategic Plan regarding professional development. ASSE members acquire their Body of Knowledge by work experience, reading and research, and professional development courses.

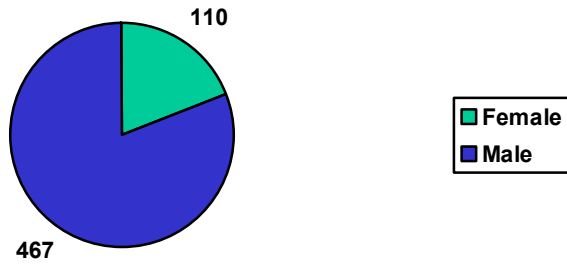
Two clear trends were noted: members reference codes, standards and regulations more than any text and members use the web extensively.

Recommendations

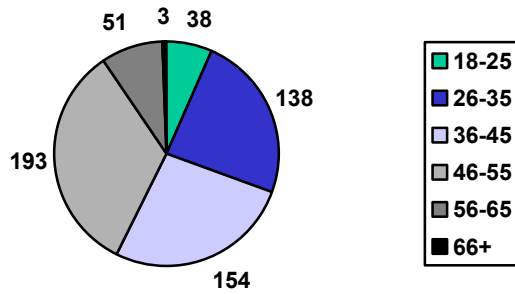
- Post the final Task Force White Paper and survey results on the ASSE web site promptly and allow access to the information by non-members.
- Make any listed reference that is currently in print/publication available through the clearinghouse ASSE currently uses. When a third party publishes a listed reference, ASSE should establish a partnership to offer the reference through the ASSE web site.
- Establishing a standing Body of Knowledge Reference Committee at the Executive level. The Committee should be charged with (1) regular review and updating of the current Body of Knowledge References, (2) categorizing the listed references by professional activity and (3) adding selections to the listings that are relevant, and perhaps unique, to the current Practice Specialties. The Committee may need to include ad hoc members from each Practice Specialty in order to develop and maintain these specialized lists of references.
- Repeat the survey every five years in order to re-validate the listings and help to ensure the Body of Knowledge Reference listing accurately reflects the current state of the SH&E profession.

APPENDIX A: SURVEY RESPONDENT DEMOGRAPHICS

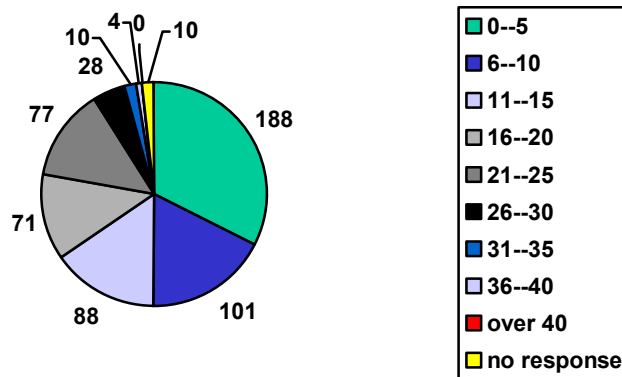
Gender



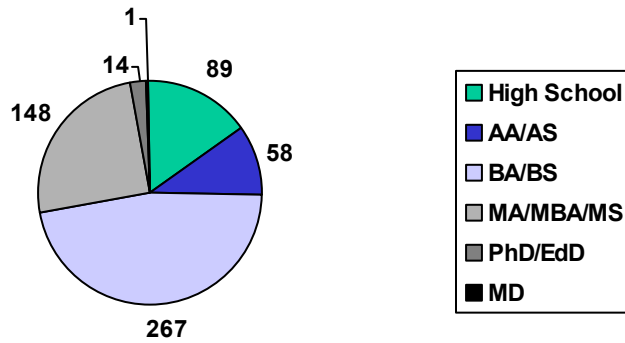
Age



Years in the Profession



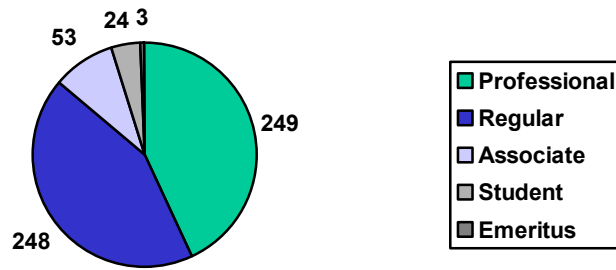
Education



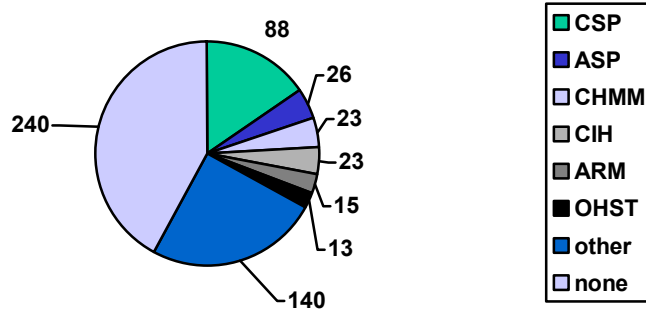
Undergraduate Major

Undergraduate Major	Number of Respondents
Safety and related fields (Industrial hygiene, public health, occupational health, etc.)	133
Other sciences	95
Business (accounting, economics, finance, etc.)	67
Engineering	66
Environmental studies	42
Education	24
Psychology and sociology	21
Medicine and related fields (Nursing, dentistry, veterinary studies, occupational therapy, physical therapy, etc.)	16
English and journalism	10
Other	103

Membership Type



Certifications



Professional Activities

Activity	Number of Respondents
711 Training / Teaching	376
701 Auditing / Assessing	272
706 Managing / Supervising	263
712 Writing / Communicating	192
705 Investigating	118
707 Planning / Project Management	104
702 Benchmarking / Measuring / Cost Benefit / Statistics	77
708 Sampling / Analyzing	63
709 Surveying / Researching	57
703 Building / Constructing	46
704 Designing	22
710 Testifying / Expert Services	11

Industry/Practice Specialty Alignment

Industry/Practice Specialty	Number of Respondents
Manufacturing	191
Construction	78
Consulting	47
Academics	33
Utilities	29
Transportation	27
Insurance/Financial Services	25
Healthcare	19
Risk Management/Loss Control/Insurance	19
Public Sector	19
Engineering	18
Environmental	15
Management	14
Service Industries	13
Retail Industries	12
Industrial Hygiene	8
International	7
Mining/Tunneling/Excavation	3
Hospitality/Leisure	0

Standard Industrial Classification (SIC) Code of Current Employer

Two-Digit SIC Code	Number of Respondents
81. Education services	37
28. Chemicals and allied products	35
99. Nonclassifiable establishments	32
87. Engineering, accounting, research and related services	32
63. Insurance carriers	29
39. Miscellaneous manufacturing industries	29
17. Construction-special trade contractors	29
36. Electronic, electrical equipment, except computer equipment	23
91. Executive, legislative and general government, except finance	22
49. Electric, gas and sanitary services	22
15. Building construction	20
18. Food and kindred products	18
16. Heavy construction other than building	18
13. Oil and gas extraction	17
29. Petroleum refining and related industries	14
80. Health services	12
35. Industrial and commercial machinery and computer equipment	12
32. Stone, clay, glass and concrete products	12
64. Insurance agents, brokers and service	11
33. Primary metal industries	11
47. Transportation services	10
34. Fabricated metal products	10
30. Rubber and miscellaneous plastic products	10
73. Business services	9
Other	103

APPENDIX B: ADDITIONALLY CITED MATERIALS

Codes, Regulations, and Standards

- American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE) Standards
- Uniform Building Code
- Uniform Plumbing Code

Texts, References, and Research Publications

- American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE) Handbook Series
- Applications Manual for the Revised NIOSH Lifting Equation
- Benchmarking for Best Practices (Bogan and English)
- Best's Loss Control Engineering (A.M. Best Co.)
- Bob's Rigging and Crane Handbook (De Benedicts)
- Complete Confined Spaces Handbook (Rekus)
- Construction Safety Planning (MacCollum)
- Crane Hazards and Their Prevention (MacCollum)
- Cumulative Trauma Disorders (Putz and Anderson)
- Elements of Ergonomics Programs (Author)
- Engineering Design for Safety (Hunter)
- Equal Employment Opportunity Commission
- Equal Employment Opportunity Commission Compliance (US Department of Labor)
- Ergonomic Design for People at Work (Kodak)
- Essentials of Risk Management (Head and Horn)
- Forklift Safety (Swartz)
- Gray's Anatomy (Gray)
- Handbook of Chemistry and Physics (CRC Press)
- Handbook of Occupational Safety and Health (DeBeradinis)
- Handbook of Rigging (Rossnagel)
- Handbook of System and Product Safety (Hammer)
- Hawley's Condensed Chemical Dictionary (Lewis)
- Hazardous Materials Management (Cox)

- Human Factors in Engineering and Design
- Illustrated Guides for Electrical Safety (ASSE)
- Indoor Air Quality: Heating Ventilation and Air Conditioning Workbook (Burton)
- Industrial Accident Prevention (Heinrich, Peterson, Roos)
- Industrial Hygiene Workbook (Burton)
- Introduction to Fall Protection (Ellis)
- KellerSoft Safety Plan
- Management Guide to Loss Control (Bird)
- Manual on Uniform Traffic Control Devices (US DOT)
- Merck Index (Budavari)
- Occupational Safety Management and Engineering (Hammer)
- On the Practice of Safety (Manuele)
- Psychology of Safety (Geller)
- Risk Management and Insurance (Trieschmann and Gustavson)
- Safety and Health for Engineers (Brauer)
- Safety and Health Management Planning (Kohn)
- Safety by Objectives (Peterson)
- Safety Management (Grimaldi)
- Safety Supervision (Peterson)
- Sax's Dangerous Properties of Industrial Materials (Wiley and Sons)
- Society of Fire Protection Engineers (SFPE) Handbook of Fire Protection (Beyler)
- System Safety Engineering and Management (Roland and Moriarty)
- Techniques of Safety Management (Peterson)
- Total Quality for Safety and Health Professionals (Adams)
- Values Driven Safety (Eckenfelder)
- Working Safely (Geller)

Noncommercial Websites

- Air and Waste Management Association (www.awma.org)
- American Conference of Governmental Industrial Hygienists (www.acgih.org)
- American Society of Heating, Refrigerating, and Air-conditioning Engineers (www.ashrae.org)

- American Society of Mechanical Engineers (www.asme.org)
- American Society of Testing and Materials (www.astm.org)
- Federal Aviation Administration (www.faa.gov)
- International Labour Organization (www.ilo.org)
- International Standards Organization (www.iso.ch)
- National Transportation Safety Board (www.nts.gov)
- Risk and Insurance Management Society (www.rims.org)
- US Chemical Safety and Hazard Investigation Board (www.chemsafety.gov)
- US Department of Energy (www.doe.gov)
- US Mine Safety and Health Administration (www.msha.gov)
- World Health Organization (www.who.org)

Journals and Periodicals

- American Consulting Engineer
- ASTM Standardization News
- Business Insurance
- Coal Age
- Construction and Engineering Safety
- Construction Business Review
- EM (A&WMA)
- Engineering News Record
- Environmental Reporter (Bureau of National Affairs)
- Health Facilities Management Magazine
- HR Magazine (Society of Human Resource Management)
- Human Factors (Human Factors and Ergonomics Society)
- IIE Solutions (Institute of Industrial Engineers)
- Journal of the Air and Waste Management Association (A&WMA)
- Modern Materials Handling
- Risk and Insurance
- Risk Management
- Standards Action (ANSI)
- Synergist

- Utility Safety

“Classic” Texts (initially publication date of 1974 or earlier)

- Hazardous Waste in America (Epstein)
- Human Error Reduction (Peterson)
- Human Factors in Engineering and Design
- Management Guide to Loss Control (Bird)
- Managing Risk, Systematic Loss Prevention for Executives (Grose)

APPENDIX C: BODY OF KNOWLEDGE TASK FORCE MEMBERS

JoAnn Sullivan, CSP Chair

Task Force chair is a professional member of ASSE, elected Administrator of the RM/I Division (2 terms), and a member of the Council on Practices and Standards. She is Senior Vice President, Risk Consulting, with Marsh USA in Phoenix. She holds a Masters Degree in Safety Management from Arizona State University. She is the author of the Loss Control 2000 White Paper; co-author of the Workplace Violence Survey and White Paper as jointly published by RIMS and ASSE and is a frequent speaker at the ASSE PDC.

Mary Ann Latko, CSP, CIH, QEP Vice Chair

Task Force Vice Chair, At-Large Task Force Member, Environmental Practice Specialty Advisory Board Member and Chair, EPS Environmental Management Committee. Mary Ann is Director of Safety Services for Aon Safetylogic, where she focuses on development of Internet-based applications for SH&E professionals. She holds bachelor degrees in Biophysics and Chemistry and a master degree in Environmental Engineering. Mary Ann has held corporate positions with Fortune 500 companies and has provided consulting services to clients on SH&E issues, program development, and compliance. Additionally, Mary Ann has experience in managing SH&E technology and research projects for Fortune 500 companies.

Christine Bierman

At-Large Member, serving as Chapter President-St Louis Chapter, Region when appointed to the Task Force. Christine is the founder and owner of Colt Safety Inc. Providing safety training, consulting services and safety products in the Midwest. Networking extensively, Christine has been a resource on the "front line" issues facing safety professional in small and medium sized companies.

Wayne Christiansen

At-Large Member, former ASSE Executive Director, and respected safety consultant with experience in the nuclear industry and industrial manufacturing. Wayne is co-author of the recently published Safety By Design, and is a founding member of the Institute for Safety Through Design. He is also faculty for National Safety Council training programs. His extensive and valuable knowledge of the profession and of the Society provided the Task Force with historical perspective as well as insight as to how the profession has evolved.

Judy Freeman

Representing the Council on Practices and Standards, Judy is the Administrator of the Environmental Practice Specialty. She holds a BS degree in Biology and is currently a project manager with Gabriel Engineering performing phase 1 and 2 environmental audits and lab analysis. She has extensive background in workers compensation and fire protection

Steve Kane, PE, CSP

Representing the Council on Professional Affairs, Steve is the former VP Professional Affairs and former Administrator of the Engineering Practice Specialty. A gifted safety consultant, Steve offered his services to the Task Force for comments on the selections made by the membership.

Jack Luckhart, CSP

Representing the Council on Member and Region Affairs as elected Regional Vice President. Jack is a national Construction Safety Consultant, specializing in large project and owner controlled insurance programs (wrap-ups). Formerly a loss control specialist with a national insurance carrier, Jack completed course work at the University of Maryland. He was a safety consultant on the Washington DC Metro project and is an expert in tunnel safety. He travels extensively in the US. Jack discussed the BoK process with the Region VP's and encouraged participation among the Chapter Presidents.

Bob Semonisck, PhD, CSP

Representing the Council on Professional Development and a member of the Strategic Planning Committee. An esteemed educator, Bob recently retired from teaching at Southern Oklahoma State University, prior to that time he was Safety Department Chair at Central Missouri State University. With academic, aviation and industry experience, Bob assisted in the research design and methodology of the project. Bob is also active in the Academics Practice Specialty and continues to work closely with current safety program faculty throughout the US.

Rennie Heath

Staff Liaison. ASSE Manager, Practices and Standards (ASSE HQ)