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## The educational status of safety professionals : a Boston area and national study.

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THE EDUCATIONAL STATUS OF SAFETY PROFESSIONALS  
-A BOSTON AREA AND NATIONAL STUDY-

A Dissertation Presented

by

David S. Buck

Submitted to the Graduate School of the  
University of Massachusetts in partial fulfillment  
of the requirements for the degree of

DOCTOR OF EDUCATION

May 1987

Education

David S. Buck

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THE EDUCATIONAL STATUS OF SAFETY PROFESSIONALS

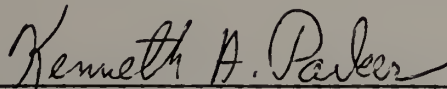
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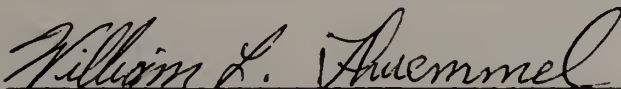
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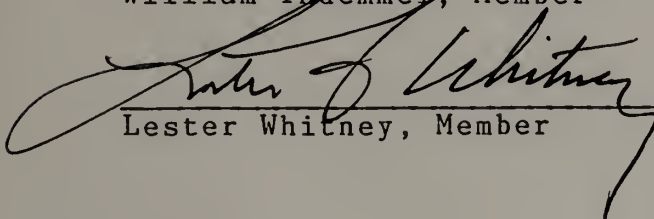
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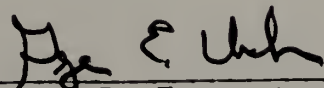
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## PREFACE AND ACKNOWLEDGEMENTS

This study is intended to compare the Boston area safety professionals to their national counterparts. The results should provide encouragement to others who are contemplating research of this type, as the safety profession consists of a very diverse group of people.

Sincere appreciation is expressed to the members of my dissertation committee including the chairman, Dr. Kenneth Parker who provided the direction for this study, and members, Dr. William Thuemmel for endless help and suggestions, and Dr. Lester Whitney for his support.

This researcher is also indebted to the many administrators, faculty, and staff at Keene State College for their complete support of this project.

The greatest support came from my family who continued encouragement even when this research seemed headed for failure. My wife, Joan, who kept a smile through it all, my daughter, Kristine, who had the patience and my oldest daughter, Debra, who constantly offered words of encouragement.

## ABSTRACT

### THE EDUCATIONAL STATUS OF SAFETY PROFESSIONALS

-A BOSTON AREA AND NATIONAL STUDY-

May 1987

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#### Purpose of the Study

The purpose of this study was to determine the types of educational training and background that today's safety professionals possess. Other areas included: perceptions of the safety profession as compared to other professions; the need for mandatory certification of safety professionals; and required educational updates to maintain certification.

#### Methodology

A descriptive research methodology was employed to gather and report the data of the study. In the first phase, questionnaires were sent to 100 randomly selected Boston area members of the American Society of Safety Engineers. Next, 955 more of the same questionnaires were sent to a random sample of national members in this same organization.

## Results

The results of the study are based on a 63% overall response with the Boston area group having a slightly higher response rate. The survey provided useful data on not only the demographic sections, but also on the education and training background of the safety professional. The responses on mandatory certification showed some very definite opinions supporting certification.

## Conclusions

Based on the results of the research, it was concluded: (1) that generally, the Boston area safety professionals are like their national counterparts; (2) that the American Society of Safety Engineers plays a major role in the training and updating of its members; (3) that a certification requirement for safety professionals is supported by the membership of the American Society of Safety Engineers.

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THE EDUCATIONAL STATUS OF SAFETY PROFESSIONALS  
-A BOSTON AREA AND NATIONAL STUDY-

CHAPTER 1  
INTRODUCTION

Background/Problem Statement

The safety movement in the United States started around 1913, when the First National Safety Congress met to share its concerns about the extreme loss of life and property that was taking place throughout the nation. A direct result of this first formal meeting was the formation of the National Safety Council, which proved to be a catalyst for a more unified safety movement. Other safety related groups, many specializing in their field of expertise, soon sprang up.

The American Society of Safety Engineers was chartered in 1911 to provide leadership and direction to the safety profession. The individuals who worked in safety during the early days had little formal training, but great concern for human life.

The sharing of safety related knowledge and informal training began to take place through the efforts of groups, such as the American Society of Safety Engineers, National Safety Council, and others. The two world wars slowed the progress of the safety profession, but much knowledge about

safety and safety practices was gained from the military.

The need for increased safety awareness and safety training began anew following the Second World War when business and industry began to rebuild. Men were now home from the war and were ready to put new effort into the safety field. Organizations, such as the American Society of Safety Engineers, became leaders in safety and safety education. At this same time, a few colleges began to adopt safety courses; and some eventually developed comprehensive safety programs.

The safety professional of today is a composite result of the informal training of the past and the more formalized training of the present. This person is best described as someone who works in the field of safety for either a private commercial company or for one of the many public service agencies. The educational backgrounds of these safety professionals are quite diverse, since no mandatory certification program presently exists in the industrial or occupational safety profession.

There is, however, a voluntary certification that is a form of professional enhancement. This is known as the Certified Safety Professional (CSP) or the Associate Safety Professional (ASP). There are other types of certification in related areas, such as the Professional Engineer (PE), or the Certified Hazard Control Manager (CHCM).

In attempting to determine what kind of individuals call themselves "safety professionals," few answers were found. It appeared that people from all backgrounds and educational levels have joined the safety ranks. This raises the question of whether or not there is a need for some type of mandatory certification, educational requirement, or other means of controlling the quality of individuals wishing to enter the safety field.

The safety professionals of today are faced with even more responsibilities than they have in the past. While it may appear that they are effectively meeting these challenges, questions arise as to whether or not adequate academic preparation or training is required. Is there a need as well for mandatory certification that would improve the credibility of those employed as safety professionals?

### Purpose

The major purpose of this study was to examine the types of educational training and background that today's safety professionals possess. Other questions include the following:

- A. How do these persons perceive their professional training in relation to other types of professions?
- B. Is there a need for mandatory certification or other standards to improve and maintain the quality of those individuals who wish to enter the field as safety professionals?

Specific objectives of this study include the following:

1. To determine on a regional and national basis the median age, years of experience, number of employees, and other demographic data of functioning safety professionals.
2. To determine on a regional and national basis the educational level (highest degree held), degree major, and other types of training received by the safety professional.
3. To compare job titles, responsibilities, and educational achievements of the safety professional.
4. To compare responses and opinions from the two study groups about a mandatory certification system.
5. To compare the Boston Region of The American Society of Safety Engineers with other members of the Society in the remainder of the country on the above mentioned objectives.

#### Significance of Study

It is anticipated that this study will be of value to various types of people which include: The American Society of Safety Engineers (ASSE), functioning safety professionals, college safety programs, insurance companies, private consulting firms, private industry, and public service agencies. Although a similar study was done by the American Society of Safety Engineers (ASSE) in 1981<sup>1</sup>, and again by the same group in the spring of 1985<sup>2</sup>, they did

not provide the detailed data contained in this study. Another study done by the Melior Consulting Group from Philadelphia, Pennsylvania in 1984<sup>3</sup> analyzed current issues of the American Society of Safety Engineers. This group attempted to survey a population of 986 members, but only received 374 usable responses. These studies, although inconclusive, have provided a basis for this dissertation.

There seems to be insufficient data on the educational preparedness of those employed in the field of safety. ("Educational preparedness" deals with academic achievement and should not be confused with specific "skill level attainment.") Colleges, and other types of training institutions that offer degree programs in occupational and industrial safety, need to know exactly what their students can expect when entering the job market. This study deals with only the experience and educational level of those employed in the occupational or industrial safety profession. The following specialized information can be found in this study:

1. The median age, years of safety experience, and educational level of the safety professional.
2. The current data base that contains demographic and training information from which any organization may draw.
3. The perceptions of those respondents in a mandatory certification program.

4. The need for training or professional development to maintain certification status as a safety professional.
5. The availability of information to prospective Safety Studies majors, faculty members, and others interested in a career in the safety field.
6. A comparison between safety professionals in the Boston area and those throughout the United States.

#### Definition of Terms

**Loss Control.** The prevention of loss through various methods, including training and evaluation.

**Occupational Safety.** The safety area that covers all occupations not associated with the manufacturing industry.

**Industrial Safety.** The safety area that covers all areas of manufacturing, including that of equipment production.

**Safety Professional.** An individual who is employed in the safety profession and contributes to the protection of human life and property.

**Underwriter.** A person who ensures the validity of all claims, and seeks to help prevent recurrence.

#### Scope and Limitations of the Study

The scope of this study was to look at only the educational training and background of the safety professional. There was also a need to poll the members as to their opinions regarding the issue of mandatory

certification. Other data collected were for demographic purposes and do help in showing ages, states of employment, company's business, number of employees, and job titles.

The study was limited to the above mentioned areas but does take an in-depth look at the educational training and background of the functioning safety professional.

### Outline of the Study

The remainder of the dissertation includes a literature review, where the background of the safety professional is examined, along with other studies that have been done in the area of training the safety professional.. Groups, such as the American Society of Safety Engineers, have surveyed their members on the issue of training. The methodological concerns are addressed in Chapter III of the study.

The research methodology that is discussed includes: description of the sample, instrumentation, research design, procedures/timelines, data collection/editing, and data analysis. The data analysis section deals with all phases of the actual study, from questionnaire development to analysis of the results.

A separate bibliography section is attached and set up, using the standard style procedure as outlined by the American Psychological Association (Third Edition).

Appendices include drafts of relevant correspondence, a draft of the survey instrument sent to the participants, and copies of other pertinent documents.

## ENDNOTES

<sup>1</sup>American Society of Safety Engineers, Status of the Safety Professional (Des Plaines, IL: American Society of Safety Engineers, 1981), p. 2.

<sup>2</sup>American Society of Safety Engineers, Status of the Safety Professional (Des Plaines, IL: American Society of Safety Engineers, 1985), p. 2.

<sup>3</sup>Melior, Marketing and Research Forecasting Consulting, Issues Analysis: A Survey of Members of the American Society of Safety Engineers (Philadelphia: Melior, Marketing and Research Forecasting Consulting, 1984), p. 3.

## CHAPTER II

### LITERATURE REVIEW

#### Introduction

The term safety is widely used; yet it seems that few people really understand its true meaning. Researchers are continually attempting to describe safety in hope of establishing a clearer definition. While all of these descriptions may vary in scope and focus, the notion that safety involves accident prevention and/or mitigation is a common denominator agreed upon by most researchers.

Below are two examples of how researchers have attempted to define safety:

Mroz states:

Safety is the prevention of accidents and the mitigation of personal injury or property damage which may result from accidents.<sup>4</sup>

Strasser, Aaron, and Bohn state:

Safety is a condition or state of being resulting from the modification of human behavior, and/or designing of the physical environment to reduce the possibility of hazards, thereby reducing accidents.<sup>5</sup>

To help understand the definition of an accident, as used in this research, a standard description is indicated below.

The National Safety Council defines an accident as:

A sudden, unplanned event which has the potential<sup>6</sup> for producing injury or damage.

The purpose of this paper is to examine the types of educational training and background that today's functioning safety professionals possess. This includes the wide range from formal college degree programs to on-the-job training. It is important to understand that, as of this writing, there is no mandatory or required certification of safety professionals. According to a 1981 study done by the American Society of Safety Engineers, people from almost all occupations have joined the safety ranks.<sup>7</sup>

In this section the four program models will be reviewed:

- 1) College Programs
- 2) Insurance Industry Programs
- 3) Professional Association Programs
- 4) On-The-Job/Inservice/Independent Training Programs

As in many other industrial occupations, job performance and skill level have been used as the primary evaluative criteria in determining the effectiveness of the worker. While this procedure does serve a purpose, it fails to take into account the changing role of the safety professional. New areas of responsibility, such as substance abuse, physical fitness, emotional adjustment, and security are constantly being added to existing duties without a parallel level of formal training. An additional

handicap that reduces the quality of the safety program is the apparent part-time status allocated to safety positions.

### Classification of Professionals

A safety professional is an individual employed as a practitioner in the field of safety who has as his/her major goals: (a) reduction and prevention of accidents both on and off the job; and (b) the development of safe products and environments. The safety professional will usually specialize in one or more of the following areas:

- 1) Driver Education
- 2) Occupational Safety
- 3) Industrial Safety
- 4) Fire Safety
- 5) Public Safety
- 6) Traffic Safety

The six safety areas above were selected as they are of primary concern to the safety program at Keene State College, Keene, New Hampshire. Since Keene State College has safety programs and/or courses in only these six specialties, this section explores the qualifications, educational requirements, and job opportunities available in each of these six areas.

#### 1) Driver Education

With nearly 50,000 highway deaths each year in the United States,<sup>8</sup> a renewed effort by safety professionals

has come forth to improve traffic safety. As a result, in driver education there has been an increased emphasis on quality driver education programs, with the accompanying necessity of adequate preparedness of driver educators.

To be an effective driver trainer it is necessary for that person to possess a diverse set of qualifications. He/she will need to be able to work with people of different ages who come from a variety of backgrounds and possess a wide range of abilities. The instructor must be able to help the student achieve a certain driving proficiency as well as to develop a thorough understanding and knowledge of road rules and regulations. The necessary competencies required for a qualified driving instructor are best summarized by Norman E. Leaf:

- \* Be certified to teach traffic safety education--with at least a four-year undergraduate degree.
- \* Be committed to the improvement of professional ability.
- \* Be of excellent moral character and a good model for youth with a positive self-concept, ability to make good decisions, good life-coping skills, and a sense of humor.
- \* Must have good language skills and ability to communicate.
- \* Must have an understanding and appreciation for social, geographic, political, and economic conditions and their impact on current problems.
- \* Must have knowledge related to their field of specialization.
- \* Must have knowledge of methods, materials, and media appropriate to teaching.
- \* Must have understanding of the purpose, administrative organizations, and operations of the school's total education program.
- \* Must have practical experience, such as student teaching, before entering the profession.

\* Must look to the future and take pride in a job well done.

The qualifications needed by the successful safety professional in this area of driver education can be summarized into four major components: 1) ability to work well with people; 2) knowledge of job; 3) willingness to work; and 4) enthusiasm. While these same characteristics could be used to describe almost anyone who is seeking employment, they are particularly pertinent to the driver education teacher.

In examining the question of need in this field, the latest statistics (1984) show that, nationwide, there is a demand for quality driver safety educators in both public schools and the private sector. There is also an increasing need for educators at the post high school level, as well as those who are specialized in the training of school bus drivers, tractor/trailer drivers, farm tractor operators, construction equipment operators, and many other areas similar to these. Driver training programs will continue to grow as the concern for safety training increases.

## 2) Occupational Safety

According to the National Safety Council's Accident Facts there were 11,300 work-related deaths and 1,900,000 disabling injuries in 1984. These figures are high and point out the need for safety programs in the workplace.<sup>10</sup>

The goal of Occupational Safety as stated by Public Law 91-596 is:

To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act, by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health; and for other purposes.<sup>11</sup>

The need for this type of protection has come about since the Industrial Revolution. At this time, concern for safety is evidenced by the development of programs that include Workers' Compensation Insurance, National Safety Congress, National Safety Council, Department of Labor's Bureau of Labor Statistics, and others. The enactment of these programs was a direct result of the need for an organized effort in Occupational Safety.

Occupational Safety is defined as safety that includes all of the various types of service occupations. It encompasses the work environment of custodians, dishwashers, waitpersons, car-wash attendants, loading dock workers, dental hygienists, and almost everyone in the workplace, regardless of job title or position.

A concentration in the study of Occupational Safety would include such courses as fire science, risk management, traffic safety, traffic engineering, chemical dependency, as well as core courses in the management area.

Typical areas of employment for an individual trained

in Occupational Safety would include loss control, risk management, institutional safety, safety consulting, and training. Many graduates will work for the insurance industry in either loss control or risk management, while others will go into retail/wholesale operations, service businesses, hospitals, or departments of safety for various state agencies.

### 3) Industrial Safety

This area can be defined as being specifically related to manufacturing or manufacturing/support industries. While it is not the intent to diminish the seriousness of machinery/equipment related accidents, it is equally important to draw attention to the hazards caused by industrial chemicals and radiation. These are also responsible for producing injury, death, and property damage.

Another area of concern is in the safe design and operation of industrial equipment. While most machinery does have some safety protective devices, it is oftentimes inadequate. Even when adequate equipment protection is provided, it will only serve its purposes if correctly installed, and, if the machine operator understands the safe operation of such equipment.

Because of the high risk factor in this area, manufacturing-type industries have a relatively poor

safety record. According to the National Safety Council

#### Accident Facts:

Currently employed industrial persons aged 19 to 64 suffer an average of 12.3 days of restricted activity, 4.2 days of bed disability, and 5.0 days of work loss each year according to 1980 data from the U.S. Public Health Service National Health Survey. The survey figures include not only injuries from accidents, but also acute or chronic conditions or illnesses as a result of employment.<sup>12</sup>

Curriculum in the area of Industrial Safety would include topics such as toxic materials and chemicals, noise control, ergonomics, lifting programs, hygiene, fire science, electronics, drafting and design, and plant layout and construction.

Professionals specifically trained in Industrial Safety would qualify for positions in industrial hygiene, general industrial safety, toxic materials handling, and construction safety. One of the major differences in Industrial Safety is the requirement of a science/chemistry background.

#### 4) Fire Safety

The fire safety officer should have a well-rounded education in all aspects of fire planning and fire control. When a fire does occur, it is important that this person has an efficient plan of action. According to Grimaldi &

Simonds:

- a. A plan of the grounds and buildings comprising the installation should be obtained.
- b. The location of all main control valves (process equipment, water supply, fuel supply, and so on), check valves, pumps, hose houses, standpipes, and hydrants should be plainly marked, easily accessible, and also identified on the plan.
- c. A plan should be prepared of each available water-supply source (private and public), such as ponds, lakes, rivers, water mains, tanks and pumps, with their estimated capacities and available pressure at ground level.
- d. A knowledge of fire extinguishing equipment, its applications, limitations, and maintenance is essential. All such equipment should be easily reached and identified, and its location in the buildings and on the grounds should be indicated on a ground plan.
- e. It is advisable that the director of disaster control acquire information on alarm systems and automatic sprinkler, foam, and waterspray or fog systems, even if this equipment may not be installed in the plant at present.<sup>13</sup>

Fire safety curriculum would include the study of fire concepts and behavior, building construction, fire fighting equipment and design, chemical hazards, and fire protection systems.

Employment opportunities outside of the industrial environment might include positions as local fire inspectors, who are part of the building code program; state fire marshals, who inspect for arson; and, of course, the local fire fighter. All of these people must have a thorough understanding of fire, and what methods and equipment can be used to control this phenomenon .

Insurance companies are becoming more actively involved in fire safety. These people service their clients by

performing inspections, offering advice, and holding training classes for employees. While fire safety is an integral component of any safety program, it is also a program in itself.

#### 5) Public Safety

Despite the growing public concern over injuries in the workplace, rarely has the public developed any overwhelming general concern for safety; a state of urgency exists only when isolated cases get widespread exposure. Problems of donated blood, the Chernobyl accident, and the Three Mile Island incident are all examples of a new public focus. Where regulations or other controls have been established as a result of incidents like these, there is no strong indication that forethought and planning preceded the establishment of any requirement. Generally, the regulations resulted from the intolerable consequences of some unregulated exposure. Probably the first occasions where broad segments of the public were troubled by hazardous practices occurred when purveyors of certain commodities found they could achieve an illegitimate gain by adulterating products or by substituting inferior materials. Hazards were not created, however, in all cases. It is interesting to observe that the motivation to protect against the dishonesty of such practices seemed at least as great as the desire to control the inherent dangers to the health and safety of the people who were exposed.

Public safety curriculum would include courses in food and drug administration, product liability, transportation (excluding motor vehicle), water-related activities, acts of nature (fire, flood, hurricane), recreational safety, and law enforcement.

Occupations in public safety might include safety inspection positions in areas such as boating, amusement rides, food processing plants, eating establishments, and railroads. Other types of occupations that the graduate would qualify for might be in building inspection, aviation safety, product safety, as well as some food and drug regulation enforcement.

As can be seen by the diversity of occupations listed, this area covers a multitude of safety concerns. Some of these affect public health and welfare, while others have a direct effect on life itself.

## 6) Traffic Safety

Highway accidents and fatalities continue to injure hundreds of thousands of people and kill nearly 50,000 each year in the United States<sup>14</sup>. While this indicates a strong need for loss prevention programs, it appears that the public has come to accept these staggering statistics as a matter of course. Evidence of this exhibits itself in the inability of many states to effectively enforce the 55-mile speed limit and the lack of support for seat belt regulations and "driving while intoxicated" laws.

While there appears to be increasing public concern over these issues, significant change will only come about when the majority of the public is willing to take an active, participative role. It is felt by many lawmakers and safety professionals that voluntary compliance will have a more permanent effect than state-mandated regulations. As an example, statistics show a 39 percent temporary reduction in the death rate as a result of the 1966 Highway Safety Act, but its effect was minimized when the death rate again began to escalate in the 1970s.

The major tasks of safety professionals will be to institute and enforce programs that will save lives and reduce property damage. The auto insurance industry is ready to join in this effort, but needs support. Such programs as mandatory seat belt laws, the strict enforcement of the 55-mile per hour speed limit, tougher inspection laws, and stronger "driving while intoxicated" laws are just a few of the areas that need to be addressed. The enforcement people simply cannot do it by themselves; they need combined strong support from lawmakers, safety educators, and most importantly, from a concerned public.

Educational requirements for the traffic safety professional would include courses in highway design, traffic flow and management, traffic law, traffic control, and enforcement procedures. Persons trained in traffic safety would qualify for positions as motor vehicle

inspectors, safety engineers, accident statisticians, safety project specialists, safety training instructors, and others.

### Program Models

#### 1) College Programs:

Several colleges today offer four-year baccalaureate of science degrees in Safety Studies. Many of these programs are part of an Industrial Technology or Engineering Program with an emphasis in Industrial Safety. Others are part of a Transportation major and specialize in Traffic Safety.

A 1981 survey of the American Society of Safety Engineers found that its members had attained degrees in the following educational programs:<sup>15</sup>

Baccalaureate Degree:		50%
Safety:	4%	
Science/Engineering:	24%	
Other:	22%	
Associate Degree:		17%

While enrollment figures are on the upswing in some college safety programs, they are decreasing in others. Associate degree programs continue to exist, usually under the shadow of a four-year program. Many two-year students will continue on to complete the baccalaureate degree requirements. A small number of colleges offer graduate degrees in Safety Studies. These programs do not attract many students as indicated by the following survey taken in 1981 by the American Society of Safety Engineers to

determine graduate level attainments of its professional members. The study showed the following:<sup>16</sup>

Doctoral Degree:		2%
Master's Degree:		15%
Safety specialization:	5%	
Science engineering:	3%	
Other:	7%	

## 2) Insurance Industry Programs

Insurance companies in the United States provide a wide variety of training and services for the safety professional. These are offered in the form of both short- and long-term specialty training programs. Typical offerings might include courses in the safety aspects of handling radioactive materials, administration of worker compensation, and other programs that would increase the competency of the safety professional. Insurance companies feel that these programs are cost effective in that the resulting increased awareness will aid in the reduction of accident claims, which, in turn, will affect premium rates. It is hoped that this continued education will have a long-term positive effect on the overall reduction of escalating insurance costs.

Some insurers offer workshops/courses in loss control, fire protection, accident investigation, safety training and methods, as well as in safety management. Programs may be offered at the client's site or at a central location. Most of them are available at little or no cost. Oftentimes the expenses involved are built into premium rates.

### 3) Professional Association Programs

The American Society of Safety Engineers is the largest national professional safety association with regional chapters throughout the country. Its present membership lists more than 20,000 with continued steady growth. The New England region includes all six New England states with the Boston chapter consisting of over 600 members.

One of the reasons for the success of this association is because of the services it makes available to its members. Not only does it offer all the traditional benefits, but also provides complete educational programs to assist safety professional in coping with constantly changing roles. Program offerings, taught by nationally recognized experts, might include courses in personal protective equipment, toxic materials handling and storage, fleet safety, fire control, and safety systems.

Certification programs, such as the Certified Safety Professional (CSP), Associate Safety Professional (ASP), and the Certified Hazard Control Manager (CHCM) are also part of the professional development program. To qualify for participation in these programs one must be a working safety professional. The first part of the program consists of an exam preparatory study, followed by the course, and then the taking of a multi-hour exam. Certification is then given based on the specific levels successfully completed. The CSP is the highest certification awarded followed by ASP and

CHCM, respectively. According to the 1981 ASSE survey, only about sixty percent of its membership held the CSP designation, while seven percent held the ASP, and eight percent the CHCM.

Not only does the American Society of Safety Engineers provide their members with extensive training, but also with opportunities to exchange ideas at local and national meetings and conferences.<sup>17</sup>

Other groups that provide services to safety professionals include state and national safety councils. Even though their training courses are not as comprehensive as those offered through ASSE, they do offer valuable support services. These safety councils are also a clearing house for local safety concerns. The National Safety Council compiles the most complete set of accident statistics of any national group. These data are published on an annual basis and made available to the public.

The role of supporting safety associations is an important one. Not only do they provide direct training for those just entering the safety field, but they also help the professionals in the field keep current on developing issues and concerns. The need continues to grow as the safety field expands in response to growing public concern for knowledgeable safety professionals. It appears that some present college offerings are not sufficiently available to keep abreast with current needs, which means that it will

become increasingly necessary to rely on these associations for training.

#### 4) On-The-Job-Training/Inservice/Independent Programs

Many safety persons are trained while at work. This can be an effective approach, especially if done under the supervision of a qualified safety professional, and in combination with some formal training program.

Unfortunately, this is not often the case; much training done on-the-job lacks an organized, planned approach resulting in a somewhat fragmented, "hit or miss" education.

The safety position is often filled by an internal promotion or assigned as an additional responsibility to someone whose primary job is not that of a safety professional. Unless this person has had prior training and experience in the safety area, which is not usually the case, the program will often suffer.

Inservice and independent training is one type of education that is widely available. It is provided, primarily, by the safety consultant. These individuals offer courses on a wide variety of topics of popular concern and at sites convenient to the trainees. These training programs can be rather costly, depending on the professional background and preparedness of the trainer. It is, however, a valid method for educating the safety person, especially if used in combination with other types of training.

## Functions

Because the job functions of the safety professional are an integral part of a comprehensive educational program, they are briefly described here. The following list is a compilation of the four traditional functions as stated by the American Society of Safety Engineers:

1. Identification and appraisal of accident and loss-producing conditions and practices and evaluation of the severity of the accident problem.
2. Development of accident prevention and loss control methods, procedures, and programs.
3. Communication of accident and loss control information to those directly involved.
4. Measurement and evaluation of the effectiveness of the accident and loss control system and the modifications needed to achieve optimum results.<sup>18</sup>

Each of these four functions contains many tasks that are required on an everyday basis. The safety professional's job is complex, with a multitude of activities all happening simultaneously. This person must be able to change direction at a moment's notice, while still maintaining control over ongoing situations.

## Summary

As can be seen, there is no single, right answer as to what provides the best education for the safety professional. A comprehensive, well-rounded program should include a strong foundation provided by a formal college program. This should be accompanied by on-the-job work experiences. Up-to-date information on current issues and

concerns can be obtained by regular participation in workshops/seminars offered by professional associations, safety councils, and private consultants, and by attendance at professional meetings.

Certification programs, such as the Certified Safety Professional (CSP) give a measure of quality and a method to monitor the level of performance of professionals in the safety field. Some individuals employed in safety positions have attained a recognized level of competence in the area of engineering by completing a Professional Engineers' (PE) program.

The current trend appears to be moving in the direction of a better educated, more experienced group of safety professionals. This, of course, is greatly influenced by the economic picture, and will change as the economy fluctuates. This is because a safety program doesn't always show a good financial return on investment. With better educated professionals in business and industry, the American workplace can be a safer environment in which to work, while showing some possible savings in insurance costs, property damage, and medical payments.

What else is needed? The answer to this question will have to come from the management area in the form of strong commitment to providing the safest possible environment for its employees. Even the best trained safety professional is

unable to work at optimum levels if he/she doesn't have the support or respect of the organization.

## ENDNOTES

<sup>4</sup>Joseph H. Mroz, Safety in Everyday Living (Dubuque: William C. Brown Group, 1978), p. 4.

<sup>5</sup>Markland K. Stasser, James E. Aaron, and Ralph C. Bohn, Fundamentals of Safety Education (New York: MacMillian Publishing Co., Inc., 1980), p. 9.

<sup>6</sup>National Safety Council, 1984 Accident Facts (Chicago: National Safety Council, 1984), p. 5.

<sup>7</sup>American Society of Safety Engineers, Status of the Safety Professional (Des Plaines, IL: American Society of Safety Engineers, 1981), p. 4.

<sup>8</sup>National Safety Council, 1984 Accident Facts (Chicago: National Safety Council, 1984), p. 7.

<sup>9</sup>Norman E. Leafe, Job Applicants (Detroit: General Motors Corp., 1979), p. 9.

<sup>10</sup>National Safety Council, 1984 Accident Facts (Chicago: National Safety Council, 1984), p. 7.

<sup>11</sup>United States Congress, Occupational Safety and Health Act (Washington: United States Congress, 1970), p. 6.

<sup>12</sup>National Safety Council, 1984 Accident Facts (Chicago: National Safety Council, 1984), p. 13.

<sup>13</sup>John V. Grimaldi, and Rollin H. Simonds, Safety Management (Homewood, IL: Richard D. Irwin Inc., 1984), p. 335.

<sup>14</sup>National Safety Council, 1984 Accident Facts  
(Chicago: National Safety Council, 1984), p. 7.

<sup>15</sup>American Society of Safety Engineers, Status of the  
Safety Professional (Des Plaines, IL: American Society of  
Safety Engineers, 1981), p. 4.

<sup>16</sup>Ibid., p. 5.

<sup>17</sup>American Society of Safety Engineers, Proceedings  
(Des Plaines, IL: American Society of Safety Engineers,  
1984), p. 34.

<sup>18</sup>American Society of Safety Engineers, Scope and  
Function of the Professional Safety Position (Des Plaines,  
IL: American Society of Safety Engineers, 1970), p. 1.

## CHAPTER III

### RESEARCH METHOD

#### Introduction

The research method used for the study is described in Chapter III. The sample is discussed along with instrumentation, timeline/procedures, data collection, and data analysis. Descriptive research of this type is straightforward, in that it selects and measures a group of participants in order to provide relevant data that can be used as a profile and a comparison of the safety professionals.

#### Description of the Sample

The first sample used in this study was randomly selected from the national membership of the American Society of Safety Engineers. No special considerations for area or population density were made. The sample was run on the Society's computer system using a random selection program exempting students, emeritus and affiliate members. Forty-five labels were not usable because of a computer printing error. The unusable labels included some members from outside the 50 states and some from Massachusetts. The second sample came from the Boston (Massachusetts) chapter of the American Society of Safety Engineers and was randomly selected by computer program using the same sample selection criteria as was used on the national sample. The Boston

chapter covers the geographic area around Boston, north into New Hampshire and Maine, south into Rhode Island, and west to Worcester, Massachusetts.

The sample size included 1,000 members from the national group and 100 members from the Boston chapter. The national group was approximately a five percent sample of the total population, while the Boston area group was approximately sixteen percent of the regional membership population. The reason for having such a discrepancy between the size of the two groups was to get a large enough sample in the Boston area to make a valid comparison with the national data. Of the 1,000 national members selected, no Boston area people were included.

In order to obtain the highest return rate possible, a follow-up letter was sent to those who had not mailed back their questionnaires six weeks after the final return date (see timeline, page 39). By doing this, it was hoped that the results between the Boston and national groups, would be comparable. A small sample (20) of nonrespondents was telephoned and asked to participate over the phone. They were questioned as to why they did not respond by mail. No one reason emerged as to why they failed to respond.

### Instrumentation

The instrument used in this study was designed by the researcher. The same form was used for sampling both groups. It was pilot tested and revised prior to the data

collection phase of the research study. The pilot testing was done at the Boston chapter (ASSE) meeting in June 1986, with 25 participants selected at random.

Input from many different sources was considered in the development phase. Examples of previous instruments, personal interviews, and recommendations from professional researchers were used in the development of the final draft. A copy of the survey instrument can be found in Appendix A; the cover letter can be found in Appendix B; Appendix C contains the authorization letter from ASSE/Boston and national, giving their support; Appendix D shows the follow-up letter; Appendix E contains the correlations; Appendix F shows the computer program used on the data.

### Research Design

The descriptive research method employed contains several steps or phases. The first step is the collection of data profiling the safety professional in the two study groups. The second step was a comparison study between the Boston chapter and the remaining American Society of Safety Engineers membership. The demographic information collected was straightforward and useful in identifying common areas in the establishment of a profile.

### Procedures/Timeline

The instrument was completed, tested, revised, and sent out, in that order, using the following timelines:

Instrument Completion	May 30, 1986
" Testing	June 6, 1986
" Revision	June 7, 1986
" Mailed	June 9, 1986
" Returned	June 12-July 17, 1986
Follow-up Letters Mailed	July 20, 1986
Additional Return Time To	Aug. 7, 1986
Study Closed	Aug. 8, 1986
Results Tabulated	Aug. 11, 1986

The above timelines were followed closely, as the only major consideration was to get the questionnaire out during the first part of June.

### Data Collection/Editing

The data were collected directly on the survey instrument, thus eliminating the need for a separate response form. These data were then entered into the computer and saved until all returns were final, or the August 8 cutoff date was reached.

The Statistical Package for the Social Sciences, version 2.1, the newer type, was used. This SPSS<sup>x</sup> provided help to evaluate and tabulate all results, including blank responses. Editing of results was kept to a minimum, but was necessary in a very small number of cases.

### Data Analysis

The data were analyzed in the following manner:

1. Data were sorted and grouped in like, or common, areas first.
2. Mean, median, mode, and standard deviation were determined for each item in the two groups sampled. The SPSS<sup>x</sup> STATISTICS ALL command was used. See Appendix F.
3. Histograms were printed for each item using the SPSS<sup>x</sup> HISTOGRAM command but were of little value so were not included in this research. The tabular data in the form of percentages seemed adequate.
4. A correlation was run on each item in the two test groups using the Pearson correlation coefficient. The SPSS<sup>x</sup> PEARSON CORR program was used. Relationships between variables at or above the .05 level were considered statistically significant.
5. A correlation was run on the job title, years of experience, and educational level. Again the SPSS<sup>x</sup> PEARSON CORR program was used. Relationships between variables at or above the .05 level were considered to be statistically significant. (The probability of this happening is less than 5 times out of a 100.)

## CHAPTER IV

### PRESENTATION AND INTERPRETATION OF DATA

This chapter is designed to report the results of the study. The researcher will review data obtained on questionnaires returned from those members of the American Society of Safety Engineers who were selected for this National study. The results will be evaluated using the national data and comparing it with the data obtained from members of the Boston chapter of the ASSE. The information is presented in narrative and tabular forms as appropriate to the data obtained.

#### Data Collection from Questionnaires

The questionnaire was mailed during the week of June 9, 1986, with 100 going to the Boston chapter members and 955 going to the national members. Follow-up cards were mailed the third week of July. The regional/national study was closed on August 8, 1986, with a final count of 664, a 63% response rate. This aggregate response was composed of 600 American Society of Safety Engineers nationally and 64 in the Boston chapter. The response rate was almost identical between the two groups with the Boston chapter slightly ahead.

Several questions on the questionnaire asked general demographic data, while others looked at job title, educational level, and type of degree held. The final three

questions probed the need for mandatory certification. The complete questionnaire can be found in Appendix A.

In most cases, the Boston chapter of the ASSE was similar to the national group. Some slight variations were found when the data were analyzed.

#### Research Objective Number 1:

To determine on a regional and national basis the median age, years of experience, number of employees, and other demographic data of functioning safety professionals.

The first research objective was answered by the first five questions on the questionnaire. They were: 1) In what state do you work?; 2) What is your age?; 3) What is your company's principal type of business?; 4) How many employees are in the location(s)/unit(s) for which you are responsible?; and 5) How many years have you worked in the safety field?.

#### Question 1:

##### In what state do you work?

The data from this question were somewhat predetermined by the random selection computer program used to pick the member mailing labels. States that had high membership rates provided a high return rate as they had greater representation. Examples are Texas, New York, Massachusetts, Illinois, and Pennsylvania, as shown in Table 1. It was also noted that about 5% of the respondents worked in more than one state. Those people were primarily in the insurance industry; however, a second small group did

surface who worked for large corporations with their many scattered facilities. For recording purposes, their home office state was used. The Boston area members show only in the Massachusetts state count with the remainder of the Boston group indicated in the New Hampshire, Maine, and Rhode Island totals. Connecticut and Vermont are listed as part of the national group. The number of questionnaires sent by state, the number returned, and the percent by state of the total are presented in Table 1. States marked with an asterisk (\*) are those that represent the Boston group.

Table 1  
Safety Respondents' State of Employment

State	# Sent	# Returned	% Total
Alabama	15	9	1.4%
Alaska	1	1	.2%
Arizona	19	7	1.1%
Arkansas	7	3	.5%
California	12	5	.8%
Colorado	19	15	2.3%
Connecticut	22	15	2.3%
Delaware	4	3	.5%
District of Columbia	8	6	.9%
Florida	50	30	4.5%
Georgia	24	12	1.8%

Table 1 cont.

Hawaii		2	2	.3%
Idaho		5	5	.8%
Illinois		65	41	6.2%
Indiana		18	7	1.1%
Iowa		10	7	1.1%
Kansas		9	6	.9%
Kentucky		12	10	1.5%
Louisiana		28	18	2.7%
Maine	*	12	5	.8%
Maryland		20	16	2.4%
Massachusetts	*	71	46	7.0%
Michigan		35	24	3.6%
Minnesota		23	13	2.0%
Mississippi		6	4	.6%
Missouri		26	14	2.1%
Montana		2	0	.0%
Nebraska		7	3	.5%
Nevada		8	7	1.1%
New Hampshire	*	11	10	1.5%
New Jersey		43	24	3.6%
New Mexico		10	8	1.2%
New York		72	48	7.3%
North Carolina		26	19	2.9%
North Dakota		2	2	.3%

Table 1 cont.

Ohio	39	26	3.9%
Oklahoma	18	9	1.4%
Pennsylvania	55	42	6.4%
Rhode Island	* 6	3	.5%
South Carolina	17	9	1.4%
Tennessee	27	13	2.0%
Texas	113	67	10.1%
Utah	10	9	1.4%
Vermont	2	2	.3%
Virginia	31	16	2.4%
Washington	1	1	.2%
West Virginia	7	3	.5%
Wisconsin	19	10	1.5%
Wyoming	<u>6</u>	<u>6</u>	<u>.9%</u>
	1055	664	100.0%

\* Boston chapter

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### Question 2:

#### What is your age?

The questionnaire was designed and set up with only three age groups; 35 years old and under, 36-54, and 55 and over. The overall response rate was 26.5%, 50.7%, and 21.6%, respectively. There were eight people who did not answer Question 2. The median age of the respondents was between 36 and 54 years of age. Both study groups, were

similar, however the Boston area group was slightly younger with about a one percent difference in the two lower age categories. The distribution of these findings is shown in Table 2.

**Table 2**  
**Age of Safety Professionals**

Years of Age	Boston	National
35 and under	28.1%	26.7%
36 - 54	50.0%	51.5%
55 and over	<u>21.9%</u>	<u>21.8%</u>
	100.0%	100.0%

**Question 3:**

**What is your company's principal type of business?**

The insurance industry with 26.2% was the most reported type of business, with manufacturing running a very close second at 24.2%. The third category was "Other" with 14.6%. This latter category included such businesses as shipbuilding, universities, postal service, commercial fishing, petroleum refining, gas and oil production, health care, wholesale food, research and development, national gas

transmission, retailing, aerospace, consulting/designing, timber, food, and multi-corporations. The ten categories suggested on the questionnaire were used by over 85% of the respondents. The "Other" category had a large variety of different responses as can be seen from the following table. The responses listed in order of popularity for these 11 different categories is shown in Table 3.

Table 3

Principal Types of Businesses Represented by Respondents

Business	Boston	National	Total
Insurance	46.9%	24.0%	26.1%
Manufacturing	17.2%	25.0%	23.7%
Other	14.1%	14.6%	14.6%
Government	3.1%	8.7%	8.1%
Utilities	4.7%	5.8%	5.7%
Services	4.7%	4.8%	4.7%
Education	3.1%	5.0%	4.7%
Construction	4.7%	4.8%	4.5%
Mining	1.6%	4.0%	3.8%
Transportation	.0%	2.3%	2.1%
Communication	<u>.0%</u>	<u>1.0%</u>	<u>.9%</u>
	100.0%	100.0%	100.0%

**Question 4:**

**How many employees are in the location(s)  
/unit(s) for which you are responsible?**

Four categories were identified on the questionnaire as follows: Less than 250 employees; 251-999; 1,000-2,000; and 2,000 or more employees. The responses were 36.8%, 21.4%, 11.3%, and 30.4%, respectively. The national group had a small edge in the 2,000 or more category. This was expected since the Boston area does not have as many large employers in comparison with the remainder of the country. The total responses for Question 4 are shown in Table 4 below.

**Table 4**

**Number of Employees for Which Respondents are Responsible**

Number	Boston	National	Total
Less than 250	44.3%	36.0%	36.8%
251-999	21.3%	21.4%	21.4%
1,000-2,000	13.1%	11.1%	11.3%
2,000 or more	<u>21.3%</u>	<u>31.4%</u>	<u>30.4%</u>
	100.0%	100.0%	100.0%

**Question 5:**

**How many years have you been working in the safety field?**

Again four categories were identified as follows: 1-5 years, 6-10 years, 11-20 years, and 21 or more years in the safety field. The responses were 17.2%, 27.2%, 33.4%, and 22.1%, respectively. The comparison of the two study groups in the first category (1-5 years) shows little difference. The second category (6-10 years) shows a 1.5% difference with the Boston chapter having the higher percentage. The biggest difference was in the third category (11-20 years) with the National group ahead by 7.1%. The fourth category (21 or more years) shows the Boston chapter with 5.4% more safety professionals at this age level than the national group. The total responses are presented in Table 5.

**Table 5**

**Number of Years Respondents Have Worked in the Safety Field**

Years Worked	Boston	National	Total
1-5 years	17.5%	17.2%	17.2%
6-10 years	28.6%	27.1%	27.2%
11-20 years	27.0%	34.1%	33.4%
21 or more years	<u>27.0%</u>	<u>21.6%</u>	<u>22.1%</u>
	100.0%	100.0%	100.0%

**Research Objective Number 2:**

To determine on a regional and national basis the educational level (highest degree held), degree major, and other types of training received by the safety professional.

This objective is answered by the next several questions from the questionnaire. The first question helps to establish how people may have gotten into the safety profession. Determining how a person entered a profession will also help to understand what motivates those people today.

**Question 6:**

How did you initially get into the safety field?

The responses to this question indicate that people enter the safety field for a variety of reasons. The categories that have the largest variance between the Boston and national respondents can be noted in Table 6. The first category, "Selected safety as a student," shows that about 4.0% more people on the national level selected safety as a student. That is not surprising since New England has only one college with a safety major. There are at least a dozen other colleges throughout the United States that offer a safety program as a major. The next significant category is the "Assigned by employer" response with a 11.6% difference between the two study groups. The national group had the larger percentage because of certain specific types of occupations. Examples of these occupations identified

are the military and federal employees. They generally have little to say about their future work assignments. The "Hired as a safety professional" category had a variation of 9.0%. This indicated the Boston area businesses were hiring more people initially as safety professionals. The "Other" category also showed the Boston area group with a higher percentage (5.4%). This percentage is made up of many special situations, some of which are unidentifiable since some respondents did not indicate what their choice of "Other" represented.

The six categories from the questionnaire along with their percentages are reported in Table 6.

Table 6

Reasons Why Respondents Entered the Safety Profession

Reasons	Boston National Total		
Selected safety as a student	12.9%	16.9%	16.5%
Because of personal experience	19.4%	18.4%	20.2%
Assigned by employer	9.7%	21.3%	19.7%
Request or recruit by employer	21.0%	20.6%	20.6%
Hired as safety professional	24.2%	15.2%	16.1%
Other	<u>12.9%</u>	<u>7.5%</u>	<u>8.0%</u>
	100.0%	100.0%	100.0%

## Question 11:

What is the highest level of your education?

The information received from Question 11 indicates there is some difference between the two study groups, but not enough to be considered significant. The results of these two groups are shown in Table 7. The first category, "High School" education, shows no respondents from the Boston area but does show 6.3% on the national level.

Table 7

Educational Level of Respondents

Education	Boston	National	Total
High School	0.0%	6.3%	5.6%
One-Year of College	6.3%	4.4%	4.6%
Two-Years of College	11.1%	9.6%	9.8%
Three-Years of College	4.8%	4.9%	4.9%
Baccalaureate Degree	55.6%	47.6%	48.8%
Master's Degree	17.5%	22.8%	22.3%
Doctoral Degree	3.2%	3.0%	3.1%
Other	<u>1.6%</u>	<u>1.4%</u>	<u>1.4%</u>
	100.0%	100.0%	100.0%

Respondents from the Boston area, on the average, seemed to be better educated than the national group, but only by a slight margin. One category that does have the national group ahead is the "Master's Degree" response. This could be explained by the lack of a master's degree program in safety in the New England area.

**Question 12:**

**In What Area Is Your Degree?**

This question breaks down into degree majors the 74.2% of respondents with degrees (see Question 11). The "Other" category of this question was, by far, the largest with 32.7% of the respondents indicating that they held degrees in areas not listed on the questionnaire. Examples of these areas include management, nursing, public health, industrial technology, industrial education, chemistry, engineering management, math, industrial engineering, civil engineering, aerospace engineering, to name a few. It seems clear that people with a variety of degrees have moved into the safety function. The percentages in order of popularity by degree specialization are presented in Table 8.

Table 8  
Area of Respondents' Degrees

Area of Degree	Boston	National	Total
Other	31.6%	32.9%	27.8%
Industrial Safety	5.3%	12.1%	9.7%
Business Management	14.0%	8.6%	7.8%
Business	14.0%	7.4%	6.8%
Science	12.3%	6.6%	6.2%
Mechanical Engineering	7.0%	6.6%	5.7%
Occupational Safety	3.5%	6.6%	5.3%
Safety	.0%	5.8%	4.5%
Education	3.5%	5.3%	4.2%
Hygiene	3.5%	3.1%	2.7%
Psychology	3.5%	2.3%	2.1%
Electrical Engineering	1.8%	1.4%	1.2%
Traffic/Public Safety	.0%	1.2%	.9%
Physiology	<u>.0%</u>	<u>.2%</u>	<u>.2%</u>
	100.0%	100.0%	100.0%

**Question 13:**

**Do you attend safety seminars and/or  
workshops at least once a year?**

The responses to this question show that 90.2% of the people surveyed did go to some sort of professional seminar

or conference on an annual basis. The number was higher than anticipated because it seems that many of the same people go to every training event or session. This item was a primer for the following question on who provided the training sessions the respondents attended.

**Question 14:**

**During the past year have you received training from any one of the following?**

This question shows where the training took place for those 90.2% of the professionals that took advantage of this service. The "Other" category included training services from such entities as: State Colleges, State Universities, American Institute of Chemical Engineers, Department of Energy, Hospital Engineers Association, Department of Transportation, American Industrial Hygiene Association, OSHA Institute, US Navy, Mine Safety and Health, "In House," etc. The responses to this item indicated that the American Society of Safety Engineers played a major role in providing training for Safety Professionals. The Boston group was slightly higher in the first two categories, especially with the insurance companies, as many of them are located in the Boston area. It had a 10.3% higher response in this category than did the national group. The other choices were close with the exception of "State Safety Councils" where the Boston group had a two-to-one margin in the training received category. To help in sorting the data,

Question 14 was broken down into responses 14a-14f with the order as they appeared on the questionnaire. Those percentages in order of response are shown in Table 9.

Table 9

Safety Training Previously Received by Respondents

Training Received From		Boston	National
14a	American Soc. of Safety Eng.	43.7%	41.5%
14d	Insurance Companies	42.8%	32.5%
14f	Other	23.4%	30.5%
14c	National Safety Council	20.3%	26.5%
14e	Consultants	18.7%	25.1%
14b	State Safety Councils	40.6%	21.6%

**Research Objective Number 3:**

To compare job titles, responsibilities, and educational achievements of the safety professional.

The first question addressed the issue of how a safety position is classified within a company. This is important as it directly related to job title, responsibilities, reporting, and job importance.

## Question 7:

How is your job classified within your company?

The responses to the job classification question were not surprising, but did show some interesting data. Most safety professionals, 40.0%, considered themselves Middle Management, while 28.9% considered themselves Technical Staff. The next group, 13.9%, was Specialized Consultants. Only 11.9% were in the Top Management Group. These results were especially encouraging to this research, since 51.9% of the respondents were in the Middle and Top Management groups. These data are presented in tabular form in Table 10.

Table 10

Job Classification of Safety Professionals

Classification	Boston	National	Total
Top Management	11.3%	11.9%	11.9%
Middle Management	45.2%	39.5%	40.0%
Technical Staff	22.6%	29.6%	28.9%
Specialized Consultants	14.5%	13.8%	13.9%
Other	<u>6.5%</u>	<u>5.2%</u>	<u>5.3%</u>
	100.0%	100.0%	100.0%

**Question 8:****To whom do you report?**

The reporting question added some interesting data to the research as 23.2% of the respondents selected the "Other" category because the 11 choices did not fit their situations or jobs. The survey instrument was pilot tested in the Boston area but did not go to a large variety of different safety professionals. An effort was made to keep the instrument simple with fewer choices working toward a higher return rate. The respondents who selected "Other" wrote in titles such as Lieutenant Colonel US Air Force, Operations Manager, Vice President of Medical School, Myself, and Insurance Company. The second most popular category was the "Director/Manager of Safety" with 15.0% of the people responding to this item. Third was "Risk/Loss Control Manager" with 13.6%. Fourth was "Director/Manager of Other" with 10.9%. This category, "Director/Manager of Other," had as many different responses as did the "Other" response. This question was not of prime importance to the research, but a comparison was made between the two study groups. This can be seen in Table 11.

Table 11

Job Title of Person To Whom Respondents Report

Job Title	Boston	National	Total
Other	30.2%	22.4%	23.2%
Dir/Mgr of Safety	12.7%	15.2%	15.0%
Risk/Loss Cont. Mgr.	20.6%	12.9%	13.6%
Dir/Mgr of Other	9.5%	11.1%	10.9%
Owner/President	14.3%	9.2%	9.7%
Gen Mgr/VP of Other	3.2%	7.4%	7.0%
Dir/Mgr of Personnel	1.6%	7.7%	7.1%
Engineering Manager	4.8%	5.4%	5.3%
Gen Mgr/VP of Ind. Rel.	1.6%	3.4%	3.2%
Gen Mgr/VP of Personnel	.0%	2.2%	2.0%
Gen Mgr/VP of Safety	1.6%	2.0%	2.0%
Dir/Mgr of Ind. Rel.	<u>.0%</u>	<u>1.2%</u>	<u>1.2%</u>
	100.0%	100.0%	100.0%

## Question 9:

## Rank job importance.

It is always interesting to see how people rate their job importance, as many factors affect the results. All

areas considered, 63.5% of the people rated their job as number one in importance when compared to quality control, production, financial, and personnel. The relative importance of their safety jobs was rated second in importance by 16.8% and third in importance by 11.2% of the respondents. This question was added to the questionnaire to determine if there was a large group of people that would not rank their jobs as important. With 80.3% of the people being in the top two categories, it has to be assumed that most people feel good about their job importance. This question addressed the issue of attitudes, but only in a very small way. The difference of attitudes reported are shown in Table 12.

Table 12

Respondents' Self-Ranking of Job Importance

Ranking	Boston	National	Total
1	52.5%	64.7%	63.5%
2	26.2%	15.9%	16.8%
3	14.8%	10.9%	11.2%
4	4.9%	5.3%	5.3%
5	<u>1.6%</u>	<u>3.3%</u>	<u>3.1%</u>
	100.0%	100.0%	100.0%

**Question 10:**

**What is the job title that most accurately describes your position?**

Responses to this question indicated a surprising variety of job titles. The one selected most often was "Director/Manager of Safety" with 17.5% of the people reporting this as their job title. "Other" was the second most common (13.1%), "Consultant/Advisor" was third (11.4%), and "Risk/Loss Control Representative" was fourth (10.7%) of the job titles selected by respondents. The complete ranking of responses is shown in Table 13.

**Question 15:**

**How does your company rate the importance of safety?**

The responses to this question show that not all people or companies rated safety as the most important factor. Sixty percent (60.4%) of the respondents put safety as number one in their company, while 27 percent (26.9%) rated safety as number two. There were a few responses that indicated some companies have a low regard for safety. This could be explained in many different ways, but there are no data in this study to substantiate any claim. The responses to this question are also subject to the mood and circumstances at the time the questionnaire was completed. How each group rated safety is shown in Table 14.

Table 13  
Respondents' Job Title

Job Title	Boston National Total		
Director/Manager of Safety	14.3%	17.9%	17.5%
Other	14.3%	13.0%	13.1%
Consultant/Advisor	11.1%	11.5%	11.4%
Risk/Loss Control Represent.	12.7%	10.5%	10.7%
Safety Specialist	14.3%	9.6%	10.1%
Safety Supervisor	3.2%	8.3%	7.8%
Safety Engineer	3.2%	7.45	7.0%
Director/Manager of Other	6.3%	5.9%	5.9%
Branch/Division Manager of Safety	4.8%	4.4%	4.4%
Technical Supervisor	3.2%	2.7%	2.7%
Inspector/Compliance Officer	3.2%	1.9%	2.0%
Owner/President	3.2%	1.7%	1.8%
Administrator/Commissioner	.0%	1.7%	1.5%
Director/Manager of Personnel	3.2%	1.2%	1.4%
General Manager/VP of Safety	3.2%	1.2%	1.4%
General Manager/VP of Other	.0%	.7%	.6%
Director/Manager of Ind. Relations	.0%	.5%	.5%
General Manager/VP of Ind. Relations	.0%	.2%	.2%
	100.0%	100.0%	100.0%

Table 14

Importance of Safety as Ranked by Respondents

Level of Importance	Boston	National	Total
Very Important	60.9%	60.4%	60.4%
Important	17.2%	28.0%	26.9%
Somewhat Important	17.2%	10.5%	11.1%
Unimportant	4.7%	1.2%	1.5%
	100.0%	100.0%	100.0%

**Research Objective Number 4:**

To compare responses and opinions from the two study groups about a mandatory certification system.

The issue of mandatory certification is beginning to surface in many different professions. An example of this is new certification requirements for drug abuse counselors, carpenters, and even pet care providers. Safety professionals are similar to other professional groups who are considering a program of this type. The next three survey questions only began to scratch the surface on how the members really felt about mandatory certification and its many ramifications. Of all the research done in this study, these results were the most surprising part the research.

**Question 16:**

**Do you feel that safety professionals should be required to update their safety education on a regular basis?**

This was the first of three questions that dealt with the subject of certification of safety professionals. A large majority of respondents (90.3%) favored this question. Typical comments were "Impossible to work in the field of safety without updates" and "Must have updates". Both populations agreed on this item as being very necessary. There seems to be a clear feeling that the safety professional must continually update his/her knowledge on a regular basis as new information and technology become available. How the members of the two groups responded are indicated in Table 15.

**Table 15**

**Respondents' Opinions About a Required Educational Update**

Opinions	Boston	National	Total
Yes	89.1%	90.5%	90.3%
No	<u>10.9%</u>	<u>10.9%</u>	<u>9.7%</u>
	100.0%	100.0%	100.0%

## Question 17:

Should future safety professionals be certified or licensed in some way?

This question shows the Boston area safety professionals favoring certification with an 85.7% positive response rate, while the national group had a 83.2% positive response rate. The level of response was surprising to the researcher, since it was anticipated mandatory certification would not be favored. From the information collected, it appears that the membership of the American Society of Safety Engineers is in favor of certification. The form of that certification was suggested by some respondents as being the Certified Safety Professional (CSP) program that now exists. This program could be used on a regular basis with some modifications in scheduling and other areas. The support for this question can be found in Table 16.

Table 16

Respondents' Answers Regarding Mandatory Certification

Category	Boston	National	Total
Yes	85.7%	83.2%	83.5%
No	<u>14.3%</u>	<u>16.8%</u>	<u>16.5%</u>
	100.0%	100.0%	100.0%

**Question 18:**

**Should current safety professionals be "grandfathered" into the profession if certification becomes mandatory?**

The responses to this question were not as high as the previous question with only 63.3% in favor of this type of certification. This seems to show, as one might expect, a high regard for the profession. The Boston area safety professionals felt that this was an important issue with only 59.4% of them responding in a favorable fashion. The subject of mandatory certification needs more research, but these preliminary figures indicate that there seems to be support for some type of program, possibly the Associate Safety Professional(ASP) and the Certified Safety Professional(CSP) exam. This issue of whether or not to "grandfather" safety professionals that are currently working needs further assessment before action is taken. How the membership felt about this issue is indicated in Table 17.

Table 17

Respondents' Answers Regarding Grandfathering of Current  
Safety Professionals

Answers	Boston	National	Total
Yes	59.4%	63.1%	63.3%
No	<u>40.6%</u>	<u>36.3%</u>	<u>36.7%</u>
	100.0%	100.0%	100.0%

**Research Objective Number 5:**

To compare the Boston Region of the American Society of Safety Engineers with other members of the Society in the remainder of the country on the above mentioned objectives.

Objective Number 5 was met throughout the study, as can be seen from the previous data. Most responses were similar between the two study groups but some small differences did exist. A more detailed and in-depth study would show where any of these differences are significant. The final three questions on the questionnaire addressed the certification issue and show what appears to be support for some form of certification. With 83.5% of the respondents favoring certification and 90.3% favoring required educational updates, it seems that the American Society of Safety Engineers is supportive of, and ready for, certification.

The idea of "grandfathering" those already in the profession was supported by most (63.3%) respondents but did not receive the same level of support as the other two questions on certification. This indicated that further study may be required.

### Correlations

The SPSS<sup>X</sup> Pearson Correlation Coefficient program was run on the data collected from the respondents. The numbers that represent a Pearson Correlation Coefficient are between 1.000 and -1.000. A 1.000 would be an example of a perfect positive relationship while -1.000 would show an inverse or perfect negative relationship. Statistical significance indicates that a correlation is not 0.0. Sample size partly determines statistical significance: the larger the number of respondents in the sample, the lower the correlation must be to be statistically significant. Since the present study included a large sample (664), functional significance was considered in the analysis of the correlations. The functional significance of the correlation coefficients was defined using Borg and Gall: .20 to .35 slight functional significance, .35 to .65 moderate functional significance and .65 to .85 strong functional significance.<sup>19</sup> Only one correlation appeared at the moderate level with a .583 coefficient. This correlation was between Question 2, "What is your age?" and Question 5, "How many years have you been

working in the safety field?". Others that fell into the slightly significant group can be seen in Appendix E.

Those statistically significant correlations are underlined and also found on the charts in Appendix E. As stated in the Data Analysis section of this document (Chapter III, page 35), a .05 or greater level was used in determining the statistical significance of the correlation coefficients.

## ENDNOTES

<sup>19</sup>W.R. Borg, and M.D. Gall, Educational Research - An Introduction, 3rd ed. (New York: Longman, 1979), p. 513.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The final chapter includes (1) a summary of the purpose, methodology, and results of the study; (2) conclusions derived from the presentation and interpretation of the data; and (3) recommendations for further study.

#### SUMMARY

##### Purpose of the Study

The major purpose of this study was to examine the types of educational training and background that today's safety professional possesses. Other areas included:

- 1) How these people perceive their safety profession and
- 2) Is there a need for mandatory certification or other standards to improve and maintain the quality of those individuals who wish to enter the field as safety professionals?

##### Methodology

The descriptive research method was employed and contained several steps. The first step was the collection of data profiling the safety professional of the two study groups. The second step was a comparative study between the Boston chapter and the remaining American Society of Safety Engineers membership on a national basis. The demographic information collected was straightforward and proved useful in identifying common areas in the establishment of a

profile. The comparative study helped to determine the areas of similarity in demographic data, perceptions, or opinions about the mandatory certification.

### Results

The results of the study are based on a 63% overall response rate, with no significant difference between the two groups studied. Combined results are as follows;

1. Approximately 50% of the safety professionals in the United States are between the ages of 36-54 years of age. The remaining 50% are almost evenly split between those "under 35" and those "over 55" years of age.
2. The insurance industry leads all businesses as the largest employer of safety professionals, with 26.1% of the total respondents. Manufacturing was a close second with 23.7%.
3. The safety professionals responding indicated that 36.8% of them were responsible for "less than 250" people. The second highest group was the "2,000 or more" people category with 30.4% indicating this as the size of his/her group.
4. The respondents reported that 33.4% of them had worked in safety for "11-20 years".
5. There seemed to be no single reason why people have entered the safety profession. The percentages ranged from 16.1% to 20.6% in the

five categories listed (see Table 6).

6. The educational level of the participants indicated that 74.2% of them held at least a four-year degree. The largest single category (48.8%) was those with baccalaureate degrees.
7. The question "Area of your degree" had a wide range of responses with no specific major being most popular. Of the 14 choices listed, the "Other" category was selected most often with a 27.8% frequency rate.
8. The respondents indicated that "Industrial Safety" was the second most common degree with 9.7% of them attaining this level of education.
9. The American Society of Safety Engineers provided more education than any of the other groups listed. They trained 42.6% of the respondents.
10. Insurance companies provided some form of training for 37.7% of those safety professionals who responded to the survey.
11. State safety councils provided 31.1% of the safety professionals with some type of training.
12. The safety professionals who responded indicated that 40% of their jobs are classified at the middle management level.
13. The "To whom do you report" question found 23.2%

of the respondents indicating that they report to someone other than the twelve choices listed. The "Other" category had a myriad of positions listed.

14. The safety professionals responding indicated that 15% of them report to a "Director/Manager of Safety".
15. Most respondents (60.4%) rated their safety job as being more important than that of quality control, production, financial, and personnel.
16. The most frequently reported job title of the respondents was "Director/Manager of Safety".
17. Regarding the company's perception of the importance of safety, it was rated to be "very important" by 60.4% of those responding.
18. The safety professionals indicated with a 90.3% positive response that there was a need for required educational updates in their profession.
19. The mandatory certification of safety professionals inquiry drew an impressive 83.5% positive response rate which indicated strong support for this important program.
20. The issue of "grandfathering" into the safety

profession all those currently working as safety professionals received a 63.3% positive response from those surveyed.

A summary profile of the safety professional compiled from the responses received is as follows:

Age : 36-54 Years  
 Occupation : Insurance  
 Company Business : Insurance  
 Number of Employees : Less Than 250  
 Years in Safety Profession : 11-20 Years  
 Entrance to Safety Profession : Requested by Employer  
 Education : Baccalaureate Degree  
 Degree Major : Various  
 Receives Training From : ASSE  
 Job Classification : Middle Management  
 Reports To : Various Positions  
 Ranks Job Importance : Number One  
 Job Title : Director/Manager of Safety  
 Mandatory Certification : In Favor

### Conclusions and Interpretations

As a result of the data collected, the following conclusions and interpretations are stated:

1. Generally the Boston area safety professional is like his/her national counterpart.

While some areas and questions of the survey did show a difference, the general theme was that of togetherness. If any difference was noted, it was in the youngest age category and type of business where the respondent safety professionals were employed. The figures indicate a slightly greater population of the "35 and under" age group in the Boston area. The "type of business" category that was selected almost twice as often by the Boston area respondents was the "insurance industry". With the number of insurance companies in New England, especially the Boston area, this is not at all surprising. One other category where the Boston area group excelled was in education. Generally this group had more formal education than the national sample at all levels except one, the master's degree. The sparcity of master's degrees in safety may be attributed to the lack of a program in New England.

2. The American Society of Safety Engineers plays a major role in the training and updating of its members.

With 43% of the safety professionals surveyed taking part in training through this organization, it is clear they provide a valuable and needed service to their members. This is not surprising as the American Society of Safety Engineers spends the bulk of its time providing educational services across the nation and the world. The Boston

chapter is one of the leaders in participation and training services due to its hardworking and dedicated membership.

3. A certification requirement for safety professionals is supported by the membership of the American Society of Safety Engineers.

The responses to the certification questions were definitely surprising. Conversations with some safety professionals prior to this study indicated that the area of mandatory certification would not be favored. With 83.5% of those safety professionals surveyed responding with a positive vote, it would lead one to believe that the time is right to start the program in motion. Further study should be done in much greater detail to see what subject areas should be included, but the initial evidence provides strong support for such a program. The question of required educational updates could also be closely tied to certification as one must stay current to stay certified. The responses indicate 90.3% of the safety professionals favoring this update requirement. The question on whether to "grandfather" those currently in the profession, should certification become a reality, drew a mixed response, with only 60% being in favor of such a move. This mixed reaction indicates that there may be some real concerns from the safety professionals as to which way to go on the grandfathering question. The issue of certification will

come up again, as it must, and needs to be addressed on a much larger scale.

### Recommendations for Further Study

The study was conducted to investigate the perceptions between the Boston area safety professionals and those on the national level regarding their safety training. Areas of study that seem to warrant additional consideration and further investigation include:

1. A separate and complete study of the certification system using the Associate Safety Professional and Certified Safety Professional programs as models.
2. A more in-depth study into what type of certification program, complete with subject areas and procedures, that would be acceptable to safety professionals.
3. A comparative study between the safety professionals and other professional groups with similar concerns about certification.
4. A study similar to this research should be conducted periodically (every other year) to assess any changes in the attitudes and status of the safety professionals.

APPENDIX A

SAFETY PROFESSIONAL  
PROFILE QUESTIONNAIRE

To help process the survey, please mark your responses to the items directly below each question by either circling your choice, placing a checkmark to the left of your response, or using the \_\_\_ Other(Please Specify)\_\_\_\_\_ category.

Date\_\_\_\_\_

1. In what state do you work? (Circle your choice)

AL	CT	ID	LA	MS	NJ	OK	TN	WV
AK	DE	IL	ME	MO	NM	OR	TX	WI
AZ	DC	IN	MD	MT	NY	PA	UT	WY
AR	FL	IA	MA	NB	NC	RI	VT	
CA	GA	KS	MI	NV	ND	SC	VA	
CO	HI	KY	MN	NH	OH	SD	WA	

2. What is your age?

\_\_\_ 35 and under

\_\_\_ 36-54

\_\_\_ 55 and over

3. What is your company's principal type of business?  
(Check only one )

\_\_\_ Mining

\_\_\_ Insurance

\_\_\_ Construction

\_\_\_ Services

\_\_\_ Manufacturing

\_\_\_ Education

\_\_\_ Transportation

\_\_\_ Government

\_\_\_ Utilities

\_\_\_ Other\_\_\_\_\_ (Please Specify)

\_\_\_ Communication

4. How many employees are in the location(s)/unit(s) for which you are responsible?
- less than 250
  - 251-999
  - 1,000-2,000
  - 2,001 or more
5. How many years have you been working in the safety field?
- 1-5 years
  - 6-10 years
  - 11-20 years
  - 21 or more years
6. How did you initially get into the safety field?  
(Check only one)
- Selected safety as a career while a student
  - Became interested in the field because of personal experience
  - Assigned by employer to assume responsibility for safety
  - Requested or recruited by employer to assume responsibility for safety
  - Hired as a safety professional
  - Other (Please Specify) \_\_\_\_\_
7. How is your job classified within your company?
- Top Management
  - Middle Management
  - Technical Staff
  - Specialized Consultant
  - Other (Please Specify) \_\_\_\_\_

## 8. To whom do you report?

- Risk/Loss Control Manager
- Engineering Manager
- Director/Manager of Safety
- Director/Manager of Industrial Safety
- Director/Manager of Personnel
- Director/Manager of (Please Specify)\_\_\_\_\_
- General Manager/VP of Safety
- General Manager/VP of Industrial Relations
- General Manager/VP of Personnel
- General Manager/VP of (Please Specify)\_\_\_\_\_
- Owner/President
- Other (Please Specify)\_\_\_\_\_

## 9. What job title most accurately describes your position?

- Risk/Loss Control Representative
- Technician/Surveyor/Hygienist
- Consultant/ Advisor
- Inspector/Compliance Officer
- Safety Specialist
- Safety Engineer
- Safety Supervisor
- Branch/ Division Manager of Safety
- Administrator/Commissioner
- Director/Manager of Safety
- Director/Manager of Industrial Relations
- Director/Manager of Personnel
- Director/Manager of Please Specify)\_\_\_\_\_
- General Manager/VP of Safety
- General Manager/VP of Industrial Relations
- General Manager/VP of Personnel
- General Manager/VP of (Please Specify)\_\_\_\_\_
- Owner/President
- Other (Please Specify)\_\_\_\_\_

## 10. What is the highest level of your education?

- High School
- One-year of College
- Two-year of College (Associate's Degree)
- Three-years of College
- Baccalaureate Degree
- Master's Degree
- Doctoral Degree
- Other (Please Specify)\_\_\_\_\_

11. In what area is your degree?

- |   |  |
|---|--|
| <input type="checkbox"/> Hygiene                | <input type="checkbox"/> Business                        |
| <input type="checkbox"/> Industrial Safety      | <input type="checkbox"/> Electrical Eng.                 |
| <input type="checkbox"/> Mechanical Engineering | <input type="checkbox"/> Science                         |
| <input type="checkbox"/> Occupational Safety    | <input type="checkbox"/> Safety                          |
| <input type="checkbox"/> Education              | <input type="checkbox"/> Physiology                      |
| <input type="checkbox"/> Traffic/Public Safety  | <input type="checkbox"/> Psychology                      |
| <input type="checkbox"/> Business Management    | <input type="checkbox"/> Other _____<br>(Please Specify) |

12. Do you attend safety seminars and/or workshops at least once a year?

- Yes
- No

13. During the past year have you received training from any one of the following? (Check as many as necessary)

- ASSE
- State Safety Council
- National Safety Council
- Insurance Companies
- Consultants
- Other \_\_\_\_\_  
(Please Specify)

14. How does your company rate the importance of safety?

- Very Important
- Important
- Somewhat Important
- Unimportant

15. Rank the jobs below as seen from your perspective. ("1" most important -- "5" least important)

- Quality Control
- Production
- Safety
- Financial
- Personnel

16. Do you feel that safety professionals should be required to update their safety education on a regular basis?

- Yes
- No

17. Should future safety professionals be certified or licensed in some way?

- Yes
- No

18. Should current safety professionals be "grandfathered" into the profession if certification becomes mandatory?

- Yes
- No

APPENDIX B

Keene  
State  
College

June 9, 1986



229 Main Street  
Keene, NH 03431  
(603) 352-1909

Dear Fellow ASSE Member,

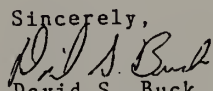
As part of a study that I am doing on the Profile of the Safety Professional, I am asking you to please take the time to complete the enclosed questionnaire. A stamped, pre-addressed envelope is also enclosed for you to return your questionnaire to me.

The information furnished should provide valuable data to the safety profession. Prospective students, and other interested persons, often ask for a profile of the people who work in safety. This study may help answer some of these questions.

Please be part of this study by completing and returning this questionnaire.

I thank you in advance for your help.

Enclosures

Sincerely,  
  
David S. Buck  
Professor  
Safety Studies

APPENDIX C

**American Society of Safety Engineers  
Boston Chapter**

286 Summer Street, Suite 300  
Boston, MA 02210  
(617) 542-6067



**EXECUTIVE COMMITTEE  
1985-1986**

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EDWARD C. BONACCORSO, CSP  
Carroon and Black of Mass.

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*ESNE*

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*RIMS*

EDWARD S. KATERSKY, CSP

*Keene State College*

RICHARD P. DeSANTIS

*Region XI Vice President*

NORMAND E. LAMONTAGNE, CSP

June 16, 1986

Dear Member:

Dave Buck, Assistant Professor Safety Studies, at Keene State College is doing a comparative study of 100 ASSE members in the Boston area. This study is an intergral part of his doctural program. Dave, who is a Boston Chapter Member, will provide us with the results of his study early next year.

I ask that you take a few moments to complete this study and return it to him as it is important to his dissertation. Studies such as this not only help Dave but also help us in learning more about our profession and our fellow members.

Thank you for your help.

Sincerely,

Lawrence A. Graves  
President Elect

---

**American Society of Safety Engineers**

1800 E. Oakton Street, Des Plaines, IL 60018-2187, (312) 692-4121



April 29, 1986

David S. Buck  
Keene State College  
229 Main Street  
Keene, NH 03431

Dear Dave,

This is to confirm our verbal agreement resulting from your letter of March 18, 1986.

By May 15, ASSE will provide to you 1,000 pressure sensitive mailing labels, randomly selected from our total U. S. membership (with students, emeritus members and affiliate members deleted). These labels are being provided to you for the purpose of assisting you in surveying safety practitioners to gather data for your doctoral dissertation, and may not be used for any other purpose whatsoever.

In return for providing the labels, you have agreed to provide to ASSE a copy of the ensuing doctoral dissertation, upon its completion.

Dave, if you have any further questions or if there is any other way I can assist you, please let me know.

Sincerely,

Renee S. Schleicher, Director  
Member Services

/vj

APPENDIX D

Keene  
State  
College



229 Main Street  
Keene, NH 03431  
(603) 352-1909

July 23, 1986

ASSE Member,

During the second week of June, I mailed a questionnaire to you regarding a profile of the Safety Professional. Now that the holiday weekend is over, I am asking you to please help me in my study by completing and returning the questionnaire. If you have misplaced the original please call my secretary for a second copy. When calling, please call collect (603) 352-1909 Ext 339.

It is my hope that many people will respond and provide the information necessary to profile the current Safety Professional.

Thank you very much,

A handwritten signature in cursive script that reads "David S. Buck".

David S. Buck

Professor

Safety Studies

APPENDIX E

## Pearson Correlation Coefficients\*

Questions\*\*

	2	3	4	5	6	7	8	9
2	<u>.100</u>	<u>.077</u>	<u>.583</u>	<u>.197</u>	<u>-.128</u>	<u>.127</u>	.031	
3		-.006	<u>.079</u>	<u>.066</u>	<u>.147</u>	.059	-.012	
4			.014	-.028	<u>-.076</u>	<u>-.115</u>	<u>-.071</u>	
5				<u>.201</u>	<u>-.153</u>	<u>.168</u>	<u>.094</u>	
6					.008	.032	<u>.080</u>	
7						<u>-.205</u>	-.032	
8							<u>.120</u>	
9								
10	<u>.064</u>	.017	.030	<u>.108</u>	-.021	<u>-.293</u>	<u>.334</u>	-.018
11	<u>-.110</u>	<u>.093</u>	-.006	-.031	-.013	<u>.067</u>	<u>.089</u>	<u>.083</u>
12	<u>.077</u>	<u>.073</u>	-.019	.057	<u>.235</u>	.035	.041	-.069
13	<u>.105</u>	<u>.094</u>	<u>-.083</u>	<u>.096</u>	.048	<u>.071</u>	.026	.061
14a	-.036	<u>-.102</u>	<u>.083</u>	-.009	<u>-.094</u>	<u>-.071</u>	-.058	.032
14b	.034	-.029	<u>.071</u>	.017	-.010	-.050	-.004	.034
14c	-.012	-.030	<u>.096</u>	-.050	<u>-.082</u>	<u>-.128</u>	.015	-.044
14d	-.032	.019	<u>-.124</u>	-.031	.024	.028	<u>-.210</u>	.053
14e	.045	<u>-.092</u>	.032	.032	.009	<u>-.110</u>	<u>.085</u>	<u>-.105</u>
14f	-.029	<u>.093</u>	<u>.077</u>	<u>-.068</u>	.031	-.006	<u>.073</u>	-.030
15	.016	<u>.093</u>	<u>.109</u>	<u>-.068</u>	.016	<u>.146</u>	-.043	<u>.094</u>
16	-.027	<u>-.076</u>	-.049	-.018	.005	.005	.001	<u>.094</u>
17	.024	-.030	-.022	-.037	.031	.033	-.043	.031
18	<u>-.174</u>	.037	-.046	<u>-.077</u>	-.005	<u>.080</u>	-.021	.060

\*Correlations with  $p < .05$  are underlined.

\*\*n = 550 to 663

## Correlations cont.\*

## Questions\*\*

	10	11	12	13	14a	14b	14c	14d
10	.....	.043	<u>.071</u>	-.012	.008	-.063	-.003	<u>-.153</u>
11	.....	.....	-.050	<u>.092</u>	-.004	<u>-.086</u>	<u>-.070</u>	<u>-.118</u>
12	.....	.....	.....	.048	-.068	-.052	<u>-.127</u>	-.031
13	.....	.....	.....	.....	<u>-.235</u>	<u>-.143</u>	<u>-.169</u>	<u>-.071</u>
14a	.....	.....	.....	.....	.....	<u>.180</u>	<u>.197</u>	<u>.094</u>
14b	.....	.....	.....	.....	.....	.....	<u>.199</u>	<u>.119</u>
14c	.....	.....	.....	.....	.....	.....	.....	.033
14d	.....	.....	.....	.....	.....	.....	.....	.....
14e	.035	-.043	-.026	<u>-.154</u>	.029	.014	.030	.048
14f	<u>.104</u>	.041	<u>.107</u>	<u>-.079</u>	<u>-.089</u>	<u>-.166</u>	<u>-.099</u>	<u>-.196</u>
15	-.021	<u>.092</u>	.044	<u>.118</u>	.029	-.006	-.008	-.026
16	-.008	-.015	-.035	<u>.151</u>	<u>-.100</u>	<u>-.119</u>	-.040	-.033
17	-.002	<u>-.135</u>	-.018	.022	-.041	-.032	-.007	.033
18	<u>.080</u>	<u>.251</u>	.019	.039	.045	<u>-.073</u>	-.055	-.043

\* Correlations with  $p < .05$  are underlined.

\*\* n = 550 to 663.

## Correlations cont.\*

	Questions**					
	14e	14f	15	16	17	18
10	.035	<u>.104</u>	-.021	-.008	-.002	<u>.080</u>
11	-.043	.041	<u>.092</u>	-.015	<u>-.135</u>	<u>.251</u>
12	-.026	<u>.107</u>	.044	-.035	-.018	.019
13	<u>-.154</u>	<u>-.079</u>	<u>.118</u>	<u>.151</u>	.022	.039
14a	.029	<u>-.089</u>	.029	<u>-.100</u>	-.041	.045
14b	.014	<u>-.166</u>	-.006	<u>-.119</u>	-.032	<u>-.073</u>
14c	.030	<u>-.099</u>	-.008	-.040	-.007	-.055
14d	.048	<u>-.196</u>	-.026	-.033	.033	-.043
14e	.....	-.057	-.054	-.030	-.041	-.005
14f	.....	.....	.009	.002	-.029	.054
15	.....	.....	.....	.008	.005	.046
16	.....	.....	.....	.....	<u>.279</u>	-.011
17	.....	.....	.....	.....	.....	<u>-.126</u>
18	.....	.....	.....	.....	.....	.....

\* Correlations with  $p < .05$  are underlined.

\*\* n = 550 to 663.

APPENDIX F

TITLE SAFETY PROFILE/COMPARATIVE STUDY  
DATA LIST

FIXED/  
IDNO 1-4 Q01 7-8 Q02 10 Q03 12-13 Q04 15  
Q05 17 Q06 19 Q07 21 Q08 23-24 Q09 26  
Q10 28-29 Q11 31 Q12 33-34 Q13 36 Q14A 38  
Q14B 39 Q14C 40 Q14D 41 Q14E 42 Q14F 43  
Q15 45 Q16 47 Q17 49 Q18 51 Q19 53

VARIABLE LABELS

IDNO 'RETURN ORDER'  
Q01 'STATE WORKED IN'  
Q02 'AGE'  
Q03 'COMPANYS BUSINESS'  
Q04 'NUMBER OF EMPLOYEES'  
Q05 'YEARS IN SAFETY'  
Q06 'HOW ENTERED SAFETY FIELD'  
Q07 'JOB CLASSIFICATION'  
Q08 'TO WHOM DO YOU REPORT'  
Q09 'RANK JOB IMPORTANCE'  
Q10 'YOUR JOB TITLE'  
Q11 'EDUCATIONAL LEVEL'  
Q12 'AREA OF YOUR DEGREE'  
Q13 'ATTENDANCE AT SAFETY SEMINARS'  
Q14A 'TRAINING RECEIVED - ASSE'  
Q14B 'TRAINING RECEIVED - STATE SAFE COUNC'  
Q14C 'TRAINING RECEIVED - NAT SAFE COUNC'  
Q14D 'TRAINING RECEIVED - INS COMPANYS'  
Q14E 'TRAINING RECEIVED - CONSULTANTS'  
Q14F 'TRAINING RECEIVED - OTHER'  
Q15 'COMPANYS RATING OF SAFETY'  
Q16 'REQUIRED EDUCATION UPDATE'  
Q17 'MANDATORY CERTIFICATION'  
Q18 'GRANDFATHER CURRENT PROFESSIONALS'  
Q19 'REGION'

VALUE LABELS

Q01 01 'AL' 02 'AK' 03 'AZ' 04 'AR' 05 'CA'  
06 'CO' 07 'CT' 08 'DE' 09 'DC' 10 'FL' 11 'GA'  
12 'HI' 13 'ID' 14 'IL' 15 'IN' 16 'IA' 17 'KS'  
18 'KY' 19 'LA' 20 'ME' 21 'MD' 22 'MA' 23 'MI'  
24 'MN' 25 'MS' 26 'MO' 27 'MT' 28 'NB' 29 'NV'  
30 'NH' 31 'NJ' 32 'NM' 33 'NY' 34 'NC' 35 'ND'  
36 'OH' 37 'OK' 38 'OR' 39 'PA' 40 'RI' 41 'SC'  
42 'SD' 43 'TN' 44 'TX' 45 'UT' 46 'VT' 47 'VA'  
48 'WA' 49 'WV' 50 'WI' 51 'WY'/  
Q02 01 '36 AND UNDER' 02 '36-54' 03 '55 AND  
OVER'/  
Q03 01 'MINING' 02 'CONSTRUCTION' 03  
'MANUFACTURING' 04 'TRANSPORTATION' 05 'UTILITIES'  
06 'COMMUNICATION' 07 'INSURANCE' 08 'SERVICES'  
09 'EDUCATION' 10 'GOVERNMENT' 11 'OTHER'/

Q04 01 'LESS THAN 250' 02 '251-999' 03  
 '1,000-2,000' 04 '2,001 OR MORE'/  
 Q05 01 '1-5 YEARS' 02 '6-10 YEARS' 03  
 '11-20 YEARS' 04 '21 OR MORE YEARS'  
 Q06 01 'SELECTED AS A STUDENT' 02  
 'PERSONAL EXPERIENCE' 03 'ASSIGNED BY EMPLOYER'  
 04 'REQUESTED RECRUITED BY EMPLOYER' 05 HIRED AS  
 SAFETY PROFESSIONAL' 06 'OTHER'/  
 Q07 01 'TOP MANAGEMENT' 02 'MIDDLE  
 MANAGEMENT' 03 'TECHNICAL STAFF' 04 'SPECIALIZED  
 CONSULTANT' 05 'OTHER'  
 Q08 01 'RISK LOSS CONTROL MANAGER' 02  
 'ENGINEERING MANAGER' 03 'DIR MGR OF SAFETY' 04  
 'DIR MGR OF INDUSTRIAL RELATIONS' 05 'DIR MGR OF  
 PERSONNEL' 06 'DIR MGR OF OTHER' 07 'GEN MGR VP OF  
 SAFETY' 08 'GEN MGR VP OF IND REL' 09 'GEN MGR VP  
 OF PERSONNEL' 10 'GEN MGR VP OF OTHER' 11 'OWNER  
 PRESIDENT' 12 'OTHER'/  
 Q09 01 'IMPORTANCE' 02 'IMPORTANCE' 03  
 'IMPORTANCE' 04 'IMPORTANCE' 05 'IMPORTANCE'/  
 Q10 01 'RISK LOSS CONTROL REP' 02  
 'TECHNICIAN SURVEYOR HYGIENIST' 03 'CONSULTANT  
 ADVISOR' 04 'INSPECTOR COMPL OFFICER' 05 'SAFETY  
 SPECIALIST' 06 'SAFETY ENGINEER' 07 'SAFETY  
 SUPERVISOR' 08 'BRAN DIV MGR OF SAFETY' 09 'ADM  
 COMMISSIONER' 10 'DIR MGR OF SAFETY' 11 'DIR MGR  
 OF IND REL' 12 'DIR MGR OF PERSONNEL' 13 'DIR MGR  
 OF OTHER' 14 'GEN MGR VP OF SAFETY' 15 'GEN MGR VP  
 OF IND REL' 16 'GEN VP OF PERSONNEL' 17 'GEN MGR  
 VP OF OTHER' 18 'OWNER PRESIDENT' 19 'OTHER'/  
 Q11 01 'HIGH SCHOOL' 02 'ONE YEAR COLLEGE'  
 03 'TWO YEARS COLLEGE' 04 'THREE YEARS COLLEGE' 05  
 'BACCALAUREATE DEGREE' 06 'MASTERS DEGREE' 07  
 'DOCTORAL DEGREE' 08 'OTHER'/  
 Q12 01 'HYGIENE' 02 'INDUSTRIAL SAFETY' 03  
 'MECHANICAL ENGINEERING' 04 'OCCUPATIONAL SAFETY'  
 05 'EDUCATION' 06 'TRAFFIC PUBLIC SAFETY' 07  
 'BUSINESS MANAGEMENT' 08 'BUSINESS' 09 'ELECTRICAL  
 ENGINEERING' 10 'SCIENCE' 11 'SAFETY' 12  
 'PHYSIOLOGY' 13 'PSYCHOLOGY' 14 'OTHER'/  
 Q13 01 'YES' 02 'NO'/  
 Q14A 01 'YES' 02 'NO'/  
 Q14B 01 'YES' 02 'NO'/  
 Q14C 01 'YES' 02 'NO'/  
 Q14D 01 'YES' 02 'NO'/  
 Q14E 01 'YES' 02 'NO'/  
 Q14F 01 'YES' 02 'NO'/  
 Q15 01 'VERY IMPORTANT' 02 'IMPORTANT' 03  
 'SOMEWHAT IMPORTANT' 04 UNIMPORTANT'/  
 Q16 01 'YES' 02 'NO'/  
 Q17 01 'YES' 02 'NO'/  
 Q18 01 'YES' 02 'NO'/

```

          Q19          01 'BOSTON REGION' 02 'NATIONAL REGION'
RECODE    Q14A TO Q14F (1=2) (0=1)
MISSING VALUES ALL(0)
FREQUENCIES VARIABLES=Q01 TO Q19/
          STATISTICS=ALL

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BEGIN DATA
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END DATA
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CROSSTABS      Q19 BY Q02
OPTIONS        3
CROSSTABS      Q19 BY Q03
OPTIONS        3
CROSSTABS      Q19 BY Q04
OPTIONS        3
CROSSTABS      Q19 BY Q05
OPTIONS        3
CROSSTABS      Q19 BY Q06
OPTIONS        3
CROSSTABS      Q19 BY Q07
OPTIONS        3
CROSSTABS      Q19 BY Q08
OPTIONS        3
CROSSTABS      Q19 BY Q09
OPTIONS        3
CROSSTABS      Q19 BY Q10
OPTIONS        3
CROSSTABS      Q19 BY Q11
OPTIONS        3
CROSSTABS      Q19 BY Q12
OPTIONS        3
CROSSTABS      Q19 BY Q13
OPTIONS        3
CROSSTABS      Q19 BY Q14A
OPTIONS        3
CROSSTABS      Q19 BY Q14B
OPTIONS        3
CROSSTABS      Q19 BY Q14C
OPTIONS        3
CROSSTABS      Q19 BY Q14D
OPTIONS        3
CROSSTABS      Q19 BY Q14E
OPTIONS        3
CROSSTABS      Q19 BY Q14F
OPTIONS        3
CROSSTABS      Q19 BY Q15
OPTIONS        3
CROSSTABS      Q19 BY Q16
OPTIONS        3
CROSSTABS      Q19 BY Q17
OPTIONS        3
CROSSTABS      Q19 BY Q18
OPTIONS        3

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PEARSON CORR Q01 TO Q18  
FINISH

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