PLAINTIFF'S EXHIBIT

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Prescriptive standards for the work environment affect the professional practice of industrial hygiene. Among the advantages are: legal requirements reinforce professional recommendations; penalties encourage abatement of hazards; compliance should ensure a safe and healthful environment; recordkeeping requirements will provide a basis for future action. Among the disadvantages are: rigid evaluation procedures, reporting format, etc., discourage professional judgment and development of new methods; professional reports become legal documents; single standards do not focus on the total environment.

Influence of legal standards on the practice of industrial hygiene

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The Occupational Safety and Health Act of 1970 was landmark legislation in many senses. One of these was that it incorporated specific prescriptive standards covering broad areas of the work environment. Non-compliance with standards may result in civil or criminal penalties, depending on the extent, seriousness and nature of non-compliance. One could cite many impacts of this legislation on society. It is my purpose here to focus on one effect of this law, specifically the designation of prescriptive, legal standards for the work environment on the practice of industrial hygiene.

In 1967[1] AIHA performed a survey of a variety of U.S. industries to determine the extent to which industrial hygienists were utilized and the nature of their responsibilities, including administrative organization within their companies. The overwhelming general finding of the survey was that an optimistic estimate of the number of employees receiving benefits of industrial hygiene knowledge and skills was five million or less—in a work force fourteen or more times this size. It could only be concluded that if the industrial hygiene profession —if it was, indeed, a profession—was offering services of value to society, then society was, in general, unaware of its needs in industrial hygiene and was not demanding or utilizing these services. The most significant impact of this law, and the Coal Mine Health and Safety Act of 1969 on industrial hygiene has been the official recognition by society of the existence and need for the expertise of our profession. There is great demand for our services and a shortage of qualified practitioners. In this official recognition of the profession and the creation by the law of a demand for the profession, lie the potential opportunities and pitfalls of the future.

I suggest that there are certain criteria to judge whether or not a field of endeavor qualifies as a profession. It must rely upon, arrange to transmit to its apprentices, and constantly ungrade an identifiable body of knowledge which its members master and apply. There is a client-professional relationship in the utilization of this body of knowledge. Perhaps most important is the subscription by its members to a code of ethics of behavior, one voluntarily adhered to by practitioners, one which members of the profession uphold by self-imposed disciplinary action. In the sense of these criteria we have not yet attained a clearly professional status in the eyes of society, although we may and indeed do, consider ourselves professionals. Most of our members are employed in industry and practice beholden to a single client. We have not formalized to any degree, i.e., accredited the educational process by which young men or women enter the field, and we have not, at

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this time, an explicitly stated code of ethics, although all of us subscribe to individually perceived codes of behavior in performance of our work. I dwell here on our present status as professionals because the time is ripe for developing the basis for our profession—the legislative process has offered us a golden opportunity; this is the great as yet unexploited effect of mandated standards and the OSHA of 1970 on the practice of industrial hygiene. Will we accept this challenge and develop a profession in the sense of classic professions, i.e., medicine, law, divinity— or even the modern, albeit more amorphous one of engineering? The latter does not qualify in all the areas noted above but at least accredits professional educational programs, has a code of ethics and holds members legally responsible for their actions by accepting state registration requirements for the practice of professional engineering. As you can see, we have much to accomplish to further our status as a profession.

If we leave this general topic of our status as a profession and turn to the impact of mandated standards on current practice by industrial hygienists in the field we can clearly discern changes in our working methods during the past four years. Some changes can be deemed beneficial while others are detrimental to professional practice. Among the advantages are the following:

1. Mandated standards create a demand for professional expertise. Previously, we relied with few exceptions, on persuasion of responsible parties for implementation of our recommendations. Today there is action by clients without the necessity for a "selling" job by the hygienist. One merely needs to point to the legal requirements, either a specific standard or the general duty clause of the OSHA, to demonstrate the need for action in a facility not meeting the standard. Personally, this turn around from voluntary adherence to guidelines to compulsory adherence to standards has made my job easier and has resulted in more efficient utilization of professional time on a job. Today we do, in a real sense, talk softly but carry a big stick. A major need which is related to this advantage is to educate our clients to the requirements of the law. Many employees and employers covered by the law cannot understand the standards applicable to their work environment. Ignorance of the law is not a basis for exemption from standards. Although education to the law continues by all concerned, my perception of the present situation is that much remains to be accomplished, especially in small plants and facilities and among non-unionized personnel, who comprise over 75% of the approximately eighty million U.S. work force. As familiarity with the law increases, the advantages of legal standards as an impetus to get the job done will become even more pronounced. Demand for services will also continue to increase.

   The incentive for employers to comply with the law is further enhanced by utilization of penalties for violators. One would like to believe that conscience and responsibility to others dictates the type of environment which managers create at work—and in some cases it does. However, we must reluctantly accept the fact that from the second decade of this century, beginning with Alice Hamilton, practitioners in our field have tried to persuade managers to expend funds to reduce the alarming toll in life and health which industrialization of this country created. Their efficacy, with few exceptions of well known success stories, was lamentably poor until the passage of the OSHA.
2. *Standards will, if followed, ensure a safe and healthful work environment.* It is an advantage to the practitioner to know that where standards are enacted they represent the best judgment of a wide range of professionals and their adoption and implementation will produce a desired long-term result in the specific area of concern. In the past, many of our guidelines evolved with considerably less expert input and advice than is now being brought to bear on NIOSH Criteria Documents, for instance. For those standards which are now in progress, and will in the future be adopted as law by legislated procedures, the practioner is more confident when applying these standards than he has been with many former guidelines, whose basis and evolution were often obscure.

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3. Mandated standards have recordkeeping requirements under the OSHA. The practice of industrial hygiene is recognized to be a science and an art. Recordkeeping requirements will serve to develop a firmer future base for standards by providing essential medical-environmental data for epidemiological studies to asses the effect of agents in working environments on men and women. The practitioner has been forced to systematically keep records and to guide others to do the same, with full documentation of negative results of testing (vis-a-vis standards). In the past, only the positive findings or those deemed potential or real hazards to employees were noted and discussed in industrial hygiene reports. Today, equal weight is given to negative and positive findings, in the sense used above, because legal standards require this documentation. Despite the increased time associated with recordkeeping, I view this development as a major advantage of mandated standards for achieving the long-term goals of our professional efforts.
4. The highlighting in the public eye of industrial hygiene by mandated standards has attracted recruits to the field. This great potential advantage for the practice of industrial hygiene is offset, to a large extent, by the way in which development of professional expertise is viewed by our regulatory and research agencies, i.e., the lack of financial support for faculty, staff and students at educational institutions capable of offering industrial hygiene education, as contrasted to short-term training necessary to measure adherence to standards.

I turn now to the disadvantages of prescriptive, mandated standards to the practice of industrial hygiene.

1. Perhaps foremost was the legal requirement that standards be very specifically documented in terms of assessment procedures. Once adopted the burden of proof of equivalency of an alternate methodology was the responsibility of the practitioner: very few practicing industrial hygienists would opt for alternate methods to those specified in a standard; they realized the effort required to furnish this proof and the economic penalty to him and/or his client. Furthermore, the uncertainty of acceptance of alternate methods by the regulatory agency or ultimately, a review board, placed all interim professional efforts on the project in jeopardy. Thus, I believe there is validity in the statement that the specificity of methodology inherent in standards tends to "freeze" the state of the art and to discourage innovation. This recognition has led to recent requirements for methodology to meet a given specification of accuracy, rather than specific procedures. This development is a major step forward and should be retained as an ingredient in all future OSHA standards.
2. Our reports involving assessment, evaluation and control of the work environment are now, because of mandated standards, legal documents, and may appear as evidence in a court of law. This development is judged to be a disadvantage because confidentiality of the professional-client relationship is violated. One writes professional reports somewhat differently when confidentiality is not assured. In fact, the client is discouraged from completely disclosing the problem to his own consultant hygienist because of the availability of the final report to regulatory agencies. This is a difficult problem, one we must undertake to solve in a satisfactory manner to ensure that the best solutions can be obtained to the very real problems which face us. At the present time there are a variety of approaches to this difficulty; some of these approaches do not reflect well on our profession. As an example, dual reporting involving an official report for the record and a confidential one, has come to my attention.
3. Priorities are set on the basis of meeting mandated standards. This ordering of priorities may ignore real problem areas, perhaps one having greater impact on health and safety than those associated with standards. As professionals we must educate clients to look beyond those situations covered by standards to the total work milieu. Today in the field of industrial hygiene one can, indeed, miss the forest for the trees. Because practicing

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hygienists bill for time and services, clients tend to authorize activity only in those areas where they are under short-term regulatory pressure. The solution to this problem is to educate our employees and managers. Once again, we see that the educational challenge to our profession is an enormous one. There are subtleties in our work embodied in concepts of synergism, cocarcinogens, etc., which must be made clear to all concerned. The failure to educate their clients has plagued and created difficulties for other professions. We should not repeat this mistake.

4. The pressure to meet standards creates a large demand for continuing, repetitive testing procedures at specified intervals of time and documentation that such testing was performed. These are tasks for technicians. A great deal of effort is currently being expended by the Federal Government, schools and industrial firms on short courses and technician training. Let us be clear on this point. These efforts do not promote broad professional capability and judgment. We should and must increase the number of professionals along with the number of technicians or we will have technicians serving in a professional capacity and doing a poor job. My own practice has a large number of referrals where someone, usually not a hygienist, has performed a service inadequately and I must repair the damage. A great deal of substandard industrial hygiene work is being performed today by practitioners inadequately prepared to evaluate and/or control agents in complex industrial environments. A systematic breakdown of easy, moderate and difficult tasks in our field would greatly assist in discouraging relative newcomers from attempting seemingly easy tasks.

5. Because standards deal with single agents, practitioners and management tend to also deal with single agents in an environment where multiple agents may be operating together. Pressures for compliance have been set on the basis of "target agents," a procedure which also detracts from evaluation and control of the total environment. Again, recognition of this tendency permits the practitioner to work to compensate for it.

In summary, selected advantages and disadvantages of mandated standards have been discussed. There are others. All in all, there is little doubt in my mind that our ultimate clients, working men and women, are better off today because of standards than they were before the advent of standards. As professionals, our manner of practicing has undergone change, but the benefits of these changes far outweigh the disadvantages. The recent difficulties and frustrations associated with standards—in fact, with the professional practice aspects of industrial hygiene in the post 1970 or OSHA period, are real, but they should be viewed with the understanding and optimism transmitted by the words of Alexis de Tocqueville over one hundred years ago: "The evils which are endured with patience so long as they are incurable seem intolerable as soon as hope can be entertained of escaping them." How else can we explain the impatience and breakneck speed with which we have moved in occupational safety and health in the U. S. during the past four years? All those involved see the hope of bringing a safe and healthful workplace to all members of a large and great society. It has never been attempted before. We are fortunate to be part of this endeavor.

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