Occupational health: The issues and the agencies

Jennifer A. O'Loughlin

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OCCUPATIONAL HEALTH: THE ISSUES AND THE AGENCIES

By

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This paper discusses occupational disease in the United States—its causes, history and the government agencies responsible for either controlling it or compensating those who develop it. The issue is a serious one. As this paper will discuss, exposure to many of the chemicals used in modern industrial processes can cause severe health problems, including some kinds of cancer.

Federal regulation of such workplace hazards did not begin until 1970, when the Occupational Safety and Health Act was passed. The act established two agencies: The Occupational Safety and Health Administration (OSHA) to promulgate and enforce workplace standards, and the National Institute for Occupational Safety and Health (NIOSH), to study workplace hazards and recommend standards and safety practices to control them.

The two agencies are now a decade old. Their job has been and is a difficult one because of widespread industry hostility and, to some extent, lack of support from the executive branch. OSHA in particular has suffered innumerable court challenges and Administration attempts to weaken standards that could cost industry a great deal of money. This paper will discuss the responsibilities and performance of these two agencies during the past ten years and the implications of the major court cases on occupational health standards.

This paper will also examine the severe problems with compensation for occupational illnesses. Aside from the plan for federal employees,
the states have complete control of compensation plans, and the adequacy of these plans is highly questionable. Very few workers with occupational diseases can obtain compensation benefits because it is so difficult to prove a definite causal relationship with workplace exposure. For example, studies may show an abnormally high lung cancer rate among workers in a particular industry. But a worker in that industry would generally be unable to receive compensation for his/her illness because it is argued that lung cancer is not unique to that occupation and could be attributable to genetic susceptibility, outside exposure and a worker's personal habits such as cigarette smoking. This problem of proof is reflected in the fact that most workers disabled by occupational disease must seek relief from other service programs such as social security.

Public interest in occupational health problems has grown with the evolution of the two new health agencies, although there have been few books written on the subject. Of these, the earliest, written in the early 1970s, are now out of print. These books illustrate an almost sudden awareness among the media, public interest groups and legal/medical professionals of workplace problems that had existed for years. The first of these, Bitter Wages, was a 1973 Ralph Nader Study Group report written by a professor and a student at Georgetown University Law Center. That same year, Expendable Americans by Paul Brodeur was published, and Muscle and Blood by Rachel Scott was published in 1974.

The Nader study is an extremely valuable introduction to occupational health issues. It presents a fairly detailed description of the lack of adequate workplace health and safety regulations, but most of
the research for the book was done during and immediately after passage of the OSH Act, so its evaluation of OSHA and NIOSH does little beyond speculate what these agencies could and should do.

Both Expendable Americans and Muscle and Blood concentrate essentially on the shock value of simply outlining the many severe health problems among American workers. Brodeur focused on the almost unbelievable rate of respiratory disease among asbestos workers, a logical subject because asbestosis was one of the first occupational diseases, along with black lung, to be recognized by the medical community.

Scott provides a broader look at industry health problems. Her book is based on a series of investigations of different industries, including the East Helena lead smelter. Although her approach is somewhat biased, apparently assuming that every health official she encountered was an industry tool, her detailed descriptions of hazardous working conditions are a valuable introduction to both workplace processes and their associated hazards.

Brodeur's and Scott's criticism of public health officials is a result of a number of factors. Both are newspaper reporters, a position which may breed familiarity with but not often respect for the acts of public officials. More important, both were writing during the formative years of federal workplace regulation, years dominated by a Republican Administration hardly sympathetic to an agency which aroused widespread ire among industrial concerns. Also, as will be discussed, industrial health research had for many years been dominated by industry and/or industry consultants, and both OSHA and NIOSH had to rely on these people initially because of the few qualified industrial health personnel.
There were no other widely distributed commercial books on occupational health until 1978 when Daniel Berman's *Death on The Job* and Samuel Epstein's *The Politics of Cancer* were published. Berman's book is based on the work he did to earn his Ph.D. in political science at St. Louis's Washington University. A very detailed book, its only fault is that it seems to assume an almost intuitive awareness on the part of the reader of the complicated interrelationships among public health officials, industry consultants, union leaders and medical people. However, if one can get past the confusing acronyms, Berman presents the most comprehensive examination of the agencies, issues, unions, consultants and health officials currently available.

Epstein, who is a professor of occupational and environmental medicine at the University of Illinois's School of Public Health, presents the medical side of the picture. His book examines not only occupational carcinogens, but environmental and possible food carcinogens and the curious lack of emphasis placed on these by most cancer researchers. This is undoubtedly the best source on the current status of health agencies and health researchers.

These books resemble those of the muckrakers whose books first examined workplace problems in the early 1900s. And just as the muckrakers excited public interest and sparked some (mostly inadequate) government response, these books may be at least partially responsible for what appears to be a somewhat more aggressive government stance on workplace health problems recently. In the past two years, the federal government released two important, and shocking, papers on occupational health. The first, released by the Department of Health, Education and
Welfare, estimated that at least 20% of all cancers were occupationally related, compared with previous estimates of between 1% and 10%. The second report, released as a draft by the Labor Department in late 1979, found that fewer than 20% of workers seriously disabled by occupational disease can receive compensation under the present systems.

This paper will use these reports, the few broad journalistic overviews of health problems discussed above, some very valuable General Accounting Office critiques, interviews with agency officials, and trends obvious in newspaper coverage to discuss occupational health problems. The author believes that a discussion of this sort is valuable for several reasons:

1. It is a review and an update of the critical journalistic examination represented by books such as *Muscle and Blood*. This approach is valuable because any agency, whatever its function, is often influenced by those it was created to regulate. The broad journalistic approach assumes that a non-specialist can (and should) critically examine the performance of a government agency, thereby assessing whether it is fulfilling its original purpose.

2. There has been little recognition among those examining occupational health problems of the potentially severe problems posed by increasing demands that occupational health standards be justified by cost/benefit analyses. Cost/benefit analyses assume that future costs and future benefits can be predicted fairly accurately and then balanced to provide an optimum decision. The problem when applying this concept to occupational health standards is that current medical knowledge cannot pinpoint the level at which any pollutants will not cause future health
effects. Health agencies may make educated guesses, but they rarely can state that a particular level will save X number of lives; they may be able to estimate the costs of a standard, but rarely the precise benefits. This paper will discuss the important court cases on this issue.

3. Despite the magnitude of the problem, there has been little critical review of the compensation concept and how well it is working in a modern industrial society. This paper will discuss compensation (or lack of it) for occupational diseases and the few attempts to amend compensation systems.

4. Most important, perhaps, is that occupational health is an environmental issue, perhaps the environmental issue because the stakes, in terms of lives, are so high. In the past 15 years, environmentalists have battled to maintain a high quality of life in communities, agricultural areas and forests, but have paid little attention to the workplace environment, where many workers are being exposed to relatively high levels of chemicals rarely encountered by the general public. Relative to allowable ambient pollution levels, or levels allowed outside of industrial facilities, workplace pollution standards are incredibly high, often around ten times those allowed by federal and state ambient standards. Hopefully, this paper can set a basis for future research on these issues.

Although this paper initially focuses on the OSH Act and its consequences, particularly in Montana, the following history will first examine the beginning of compensation systems because these were started before most occupational health organizations and agencies.
Because this paper mentions a plethora of agencies and organizations, all of which have acronyms, a list of these acronyms follows to help the reader avoid possible confusion.

**Acronyms**

American Conference of Governmental Industrial Hygienists.............ACGIH
American Industrial Health Council..................................AIHC
American National Standards Institute..............................ANSI
Bureau of Labor Statistics.........................................BLS
General Accounting Office..........................................GAO
Industrial Health Foundation.......................................IHF
National Institute for Occupational Safety and Health...............NIOSH
Occupational Safety and Health Administration......................OSHA
Chapter 1

OCCUPATIONAL HEALTH ISSUES IN THE UNITED STATES—A BRIEF HISTORY

Since the Occupational Safety and Health Act was passed in 1970, the public has become increasingly aware of the many dangers in the nation's workplaces, particularly the dangers posed by exposure to chemicals now known to be carcinogenic. The environmental movements of the late 1960s and early '70s, which aroused concern about the effects of uncontrolled industrial processes on human health and welfare, spawned much of this concern. The environmental movement began when the massive industrialization of western society which followed World War II began to affect entire communities, in some cases entire regions. Before the 1960s, when terms such as smog and the greenhouse effect became commonplace, pollution episodes and public concern about them were limited to highly industrialized areas such as Donora, Pennsylvania, when a three-day inversion trapped pollution in the valley, killing 20 people and causing 6,000 to become ill.1

It was not until pollution began degrading the quality of middle-class life, causing offensive odors, limited visibility and burning eyes, that the public and the media took notice of the side effects of progress. It is significant that the event which initially caused widespread ire over increasing pollution was the 1969 Santa Barbara oil spill, fouling the beaches in that affluent community.

Workplace health, on the other hand, was often an invisible issue. Workers lived and died ignored unless a strike threatened to interrupt
the flow of consumer goods. In the late 1800s and early 1900s, a period
which witnessed both the birth of the great industrial giants and the
peak of immigration into the United States, the emerging industries took
advantage of a workforce that was cheap and easily replaced. Dr. Alice
Hamilton, a pioneer in industrial hygiene, studied lead poisoning among
workers in 1910 and 1911 and commented:

I remember a foreman saying to me, as we watched the (lead)
enamblers at work: 'They won't last long at it. Four years
at the most, I would say, then they quit and go home to the
old country.' 'To die?' I asked. 'Well, I suppose that's
about the size of it,' he answered.2

Dr. Hamilton was one of the few professionals at the time investi­
gating the often appalling workplace conditions. In 1907 alone, 3,842
men were killed in the anthracite and bituminous coal mines, and 4,534
railroad workers were killed on the job.3 The muckrackers, who chronicled
the excesses of the great industrial monopolies, attracted some public
attention to the problems. Perhaps the best known of their works is
Upton Sinclair's The Jungle, published in 1906, which depicted life in
and around Chicago's slaughterhouses through the eyes of a young immi­
grant. In one of Sinclair's more memorable scenes, he described one
small aspect of the meat packing business:

There were men in the pickle rooms, for instance . . . scarce
a one of these that had not some spot of horror on his person.
Let a man so much as scrape his finger pushing a truck in the
pickle rooms, and he might have a sore that would put him out
of the world; all the joints in his fingers might be eaten by
the acid, one by one. Of the butchers and floorsmen, the beef
boners and trimmers, and all those who used knives, you could
scarcely find a person who had the use of his thumb; time and
time again the base of it had been slashed till it was a mere
lump of flesh against which the man pressed the knife to hold
it.4
Sinclair's book resulted in a government investigation which led to the passage of the pure food laws. But it took a major tragedy to focus attention on the plight of the workers themselves.

On March 25, 1911, the upper three stories of the ten-story Triangle Shirtwaist Building in New York City caught fire. There was only one fire escape in the building, and its doors opened inward, trapping the workers who pressed against them trying to escape. One hundred and forty six people, most of them women, died. According to one newspaper account of the fire:

They were jammed into the windows. They were burning to death in the windows. One by one the window jams broke. Down came the bodies in a shower, burning, smoking, flaming bodies, with disheveled hair trailing upward. These torches, suffering ones, fell inertly. The floods of water from the firemen's hoses that ran into the gutter were actually red with blood. I looked upon the heap of dead bodies and I remembered these girls were the shirtwaist makers. I remembered their strike of last year in which these same girls had demanded more sanitary conditions and more safety precautions in the shops. These dead bodies were the answer.

The building's owners were acquitted, and the fire's survivors received no compensation. But the incident brought about demands for reform, particularly in laws governing employer liability. Until the turn of the century, an employee could claim damages for a job-related injury only by suing the employer; in some states, a worker's survivors had no recourse to legal action. Under the negligence laws, the burden of proof was on the employee, and an employer had three fairly effective defenses:

1. Contributory negligence. This excused the employer from liability if it could be shown the injured worker was in any way responsible for the accident.
2. Fellow servant doctrine. If another worker contributed to the accident, the employer was not liable. This concept had its roots in the 1842 case of *Farwell v. Boston and Worcester Railroad Company*. The U.S. Supreme Court ruled that the employer's liability was governed by an implied contract between the employer and the employee, and that contract did not include the negligence of anyone but the employer.⁶

3. Assumption-of-risk. This was based on the view that a worker could and would drive a hard bargain if employed at a risky job. It had its roots in the English case *Priestly v. Fowler* in which a butcher boy's helper was injured. The court ruled that a servant was not bound to risk safety in the service of an employer and could therefore decline employment.⁷

The assumption-of-risk concept was sometimes taken to extremes. In a 1924 New York case, a girl who contracted tuberculosis after working in a damp dirty cellar was denied compensation. As the judge severely stated:

The plaintiff was fully aware of the conditions under which she worked and continued the employment from June to December in spite of such knowledge. . . . It is common knowledge that such conditions are deleterious to health. The plaintiff is chargeable with such knowledge.⁸

The difficulty of winning a negligence suit posed a grave societal burden. Disabled workers and their families were forced to depend on private and public charities. Several states passed laws attempting to limit employers' defenses in negligence cases. In 1908, 27 states had outlawed work contracts which removed employer liability, and many had modified the fellow-servant doctrine, making supervisors liable representatives of employers.⁹
But these provisions did little to increase the number of injury awards, and many states formed commissions to investigate how to alleviate the problem. Between 1909 and 1913, there were 40 such investigations in 32 jurisdictions. Their findings indicated that about 7/8 of all work injuries received no financial compensation. In a followup study of 604 fatalities in New York, Minnesota and Pennsylvania before 1911, it was found that 33% received no award and 48% received less than $500. The New York state commission found that those workers who did receive awards paid 30% to 50% of their recoveries in legal costs.10

The commissions almost unanimously concluded that the negligence tort system was based on an anachronistic assumption of individual fault and did not consider the nature of modern industry with its chemicals, mechanization and complex processes. The commissions recommended that states adopt compensation systems based on the concept of faultless liability. Businesses would pay monthly premiums, based on the size of their workforce, into a fund used to compensate injured workers. Workers covered by this system would then forfeit their right to sue for additional damages.

Compensation systems were not new. In 1884, Otto Bismarck pushed for a compensation system in Germany. His primary concern was to diminish the growing socialist influence in that country by giving workers automatic compensation for workplace injuries. Although workers paid the premiums, the German system was relatively progressive: Injured workers received free medical treatment and compensation of up to 2/3 of their original wages.11
England passed a compensation law in 1897 which allowed compensation for injuries "arising out of and in the course of employment," the language now used in most U.S. compensation systems. The English system initially covered only hazardous industries such as mining, but employers paid the premiums.\textsuperscript{12}

Maryland passed the first U.S. compensations statute in 1902. It covered only deaths and was limited to mining, quarrying, railroads and municipal construction. It was declared unconstitutional in less than two years because it "deprived the parties of the right of trial by jury and . . . conferred judicial functions on the insurance commissioner, an executive official."\textsuperscript{13}

This marked the beginning of a struggle between state legislatures and the courts on the constitutionality of compensation statutes. The main issues were state police or regulating power versus what the courts viewed as employers' right to trial by jury.

For example, Montana passed the nation's first compulsory compensation statute in 1909. It set up a special state fund, covering only coal mining, to be paid for by both employers and employees. In 1911, the state supreme court declared the law unconstitutional, ruling that it subjected employers to double liability because they had to contribute to the fund but could still be sued.\textsuperscript{14}

The major case challenging the compensation concept was \textit{Ives v. S. Buffalo}, which overturned the New York compensation law. The law applied to only eight "especially dangerous" occupations, but it was challenged on the ground that it violated due process of both state and federal constitutions. In fact, the New York Court of Appeals in its
decision declared that the law was "plainly revolutionary" and unconstitutional because it arbitrarily took the property of A and gave it to B.\textsuperscript{15}

New York responded by passing a second law in 1914 which carefully stipulated that adherence was elective. The legislature then severely limited the common law defenses of employers who opted out. Because of court hostility to compensation systems, most states followed New York's lead and adopted statutes which did not require compensation but limited legal defenses without it. Only Washington initially adopted a compulsory law, and the state supreme court not only upheld the act, it chas-tised the Ives decision.\textsuperscript{16}

After the Ives decision, courts began to uphold states' right to require compensation. By 1917, the U.S. Supreme Court had affirmed the constitutionality of New York's law (by then compulsory, although it allowed insurance through private companies), Iowa's elective law and Washington's exclusive state fund.\textsuperscript{17}

By 1920, all but six states, most of them in the South, had some form of compensation. In 1948, Mississippi became the last state to pass a law; Alaska and Hawaii both enacted laws as territories.\textsuperscript{18}

The challenges to compensation to some extent shaped current systems. Only six states have an exclusive state system.* Other states have a state compensation fund, but also allow companies to self-insure and buy premiums from private insurance companies. New Jersey, South Carolina and Texas do not require compensation insurance, but uncovered employers have few common law defenses in negligence suits.\textsuperscript{19}

* Nevada, North Dakota, Ohio, Washington, West Virginia, Wyoming
Some of the larger industries had supported and/or started their own compensation systems before the states did. In 1910, U.S. Steel started a compensation system based on Bismarck's plan, called the Voluntary Accident Relief Plan, which paid a fixed amount for disability or death with the stipulation that the worker and his family could not sue. In 1900, a coalition of large corporations founded the National Civic Foundation, which lobbied for compensation to "substitute a fixed but limited charge for a variable potentially ruinous one." The foundation later wrote compensation models later used by many states.

As Ralph Nader's Study Group noted "... Workmen's compensation made excellent business sense, and for that reason powerful business interests backed its adoption." Compensation removed, in most cases, the threat of lawsuits against employers and allowed them to pay a relatively small premium to pay off injured employees.

Both industry and political leaders were well aware of growing worker unrest and its implications. Industry supported such mild reforms as compensation because they at least initially appeased workers without changing the basic economic system. President Theodore Roosevelt recommended mediation in the 1902 anthracite coal strike after he realized that public support for the miners could accelerate beyond demands for better wages and working conditions.

But the new compensation laws by no means solved workplace safety and health problems. Compensation allowed industry to avoid the large awards and bad publicity sometimes associated with negligence suits. The system did not (and does not, as will be discussed) provide much impetus to correct workplace problems, particularly those involving
health. As with the spur toward compensation, it took a major disaster to focus attention on some workplace conditions.

In 1930, the New Kanawha Power Company, a Union Carbide subsidiary, began work on a three-mile tunnel to carry water from the New River in West Virginia to its new power plant. The six-year project, which employed about 4,000 workers, bored through rock composed primarily of silica, a very fine dust now known to cause silicosis, an emphysema-like disease. The employers made no attempt to protect workers from the dust, although they gave supervisors respirators. Estimates of death among the workers in what is now called the Gauley Bridge Disaster range from 200 to 2,000, although the official number is about 470. Silicosis victims could not get compensation in West Virginia at the time, and the injured workers were forced to sue. In these suits, the average awards ranged from $80 to $250 for blacks and $250 to $1,000 for whites.

After the Gauley Bridge Disaster and the attendant publicity, a number of industries began sponsoring workplace safety organizations. Perhaps the most influential of these was the Industrial Hygiene Foundation (now the Industrial Health Foundation) founded in 1935 by the Mellon Institute (now the Carnegie-Mellon Institute) as "an association of industries for the advancement of healthful working conditions." IHF had 225 members by 1940 and 400 members by the late 1960s, including U.S. Steel, General Motors and Union Carbide. The organization's primary goal was to discourage any government regulation of workplace safety and health. As stated by the chairman of the membership committee:

One of the brilliant features of IHF is this: it is a voluntary undertaking by industry to protect industrial health. And where industry attacks a great social-economic problem voluntarily, there is no necessity for government to step in and regulate.
Organizations like IHF were extremely influential because until the OSH Act, workplace health and safety regulations and recommendations were made primarily by voluntary groups. The most important standard-setting organizations were the American National Standards Institute (ANSI) and the American Conference of Governmental Industrial Hygenists (ACGIH), both of which use their own research and information provided by groups such as IHF.

Founded in 1918, ANSI develops "consensus" standards, which are pollution limits or safety practices established by agreement among the supposedly differing viewpoints in the organization's membership. According to the Nader study, ANSI members include corporations, trade associations, government agencies and private groups such as the National Safety Council. Only in the past decade have unions been represented.

ACGIH also develops consensus standards. Founded in 1938, the organization is less industry-oriented than ANSI, with a membership composed mainly of state and federal industrial hygenists.

Although groups such as IHF and ANSI may seem little more than an attempt by industry to ameliorate conditions caused by its own production methods, their recommendations are meant to prevent only immediate acute problems. Widespread accidents or poisoning in the workplace would at least inconvenience employers. If a worker has trained for a certain position and then poisoned or killed on the job, the company would have to spend money to train another worker. But the effects of long-term exposure to chronic pollution levels generally do not appear until a worker is close to retirement, thus making it easier for companies to ignore the problem. Two excellent examples of this phenomenon are the results of arsenic and asbestos exposure.
The ACGIH arsenic standard was 500 micrograms per cubic meter, the limit initially adopted by OSHA. This limit was sufficient to prevent the acute or immediate effects of arsenic—skin diseases or outright poisoning. But arsenic is a human carcinogen. In Montana, for example, the lung cancer rate is three times the state average among smelter workers at the Anaconda copper smelter, which processes arsenic-laden copper ore. These and similar statistics may illustrate the magnitude of the problem, but most workers don't develop cancer for 10 to 30 years after initial exposure. Another example is pertinent: In 1974, the Dow Chemical Company revealed that of 178 former workers at one of its arsenic processing plants, a third had died of cancer. Thus, the relatively long latency period between exposure and development of cancer probably has little effect, in corporate eyes, on the efficiency or productivity of the workforce.

The same is true of asbestos, a fibrous material woven into cloth used for insulation. It lodges easily in the lungs and can cause asbestosis, a debilitating and often fatal lung disease, lung cancer and mesothelioma, a rare form of lung cancer. The harmful effects of prolonged asbestos exposure were noticed as early as 1918, when U.S. and Canadian insurance companies decided to stop selling life insurance to asbestos workers. A study released by the U.S. Public Health Service in 1935 found that 67 of 126 who had worked in asbestos plants and mines had asbestosis.

By 1960, 63 papers had been published on the health implications of asbestosis in the U.S., Canada and Britain. Fifty-three of these papers were done by non-industry consultants, and these found a definite
The correlation between asbestos and asbestosis and lung cancer. The 11 industry-sponsored papers rejected any connection between asbestos and lung cancer and minimized asbestosis. During the 1960s, Dr. Lester Cralley, then of the U.S. Public Health Service and later a consultant for IHF, began studying possible health problems in the asbestos industry. Although his study acknowledged asbestosis, he made no attempt to determine any correlation with lung cancer or mesothelioma.

It was not until Dr. Irving Selikoff, an epidemiologist at New York City's Mt. Sinai Hospital, released a study revealing the extremely high cancer rates among former asbestos workers that the carcinogen potential of the substance began to be taken seriously. Selikoff followed up the histories of 632 asbestos workers listed on union roles in 1943; by 1973, 444 of these had died—50% more than expected among the white male population. The lung cancer rates among the workers were seven times higher than expected, and Selikoff found 35 cases of mesothelioma. According to a 1978 report by the Department of Health, Education and Welfare, within the next 30 to 35 years, between 58,000 and 75,000 people now working with asbestosis will die each year from cancer, a figure which represents 13% to 18% of all cancer deaths expected in the United States in the future.

Again, it is important to emphasize that most of these deaths will occur after the workers have retired or are close to retirement. Thus, there is no immediate economic incentive for industry to eliminate the conditions that cause the disease. It is difficult to prove that the industry consultants who downplayed the seriousness of these problems were actually aware of their severity. Since they seem to have concen-
trated their studies on active workers rather than retired workers, they may not have noticed the extremely high cancer rates among those exposed.

Whatever their motives may have been, the influence of industry safety and health consultants should not be underestimated. Although it might be said that they were formed to fill a gap in workplace health issues ignored by the government, their conservative impact is still being felt. As late as 1968, an editorial in the IHF bulletin claimed that there was no evidence supporting the existence of black lung. The editorial advised people to stop talking about it because continuing discussion would only alarm miners, causing widespread ectogenic disease—that is, if you're told to expect symptoms, you'll develop them.42

In 1976, IHF published a book called Industrial Environmental Health—The Worker and the Community. Contributors included Dr. Lester Cralley. The book, a review of current epidemiology, lab studies and disease detection techniques, is straightforward in its attitude. As Dr. Cralley states in the introduction:

The time is now approaching when man's greatest environmental stress may well be that of his own individual creation—his home. Many of his hobbies are associated with hazards that would not be tolerated on the job... To make matters worse, man's insult to himself from smoking, self-medication, improvident working habits beyond that to which he is acclimated, overeating, etc. may actually dwarf environmental stresses on the job and in the community... the fact remains that information is inadequate to state with any degree of confidence that air pollution has an ill effect upon health except under acute conditions.43

The activities of these health organizations can also be lucrative. Between 1963 and the early 1970s, the IHF received more than $1.3 million in grants and contracts from the U.S. Public Health Service.44
The influence of industry consultants did not end with passage of the OSH Act. As OSHA and NIOSH began reviewing the literature and doing epidemiology studies to detect problems and adopt adequate standards, industry responded with a barrage of studies downplaying the potential dangers of many workplace chemicals.

At 1973 hearings before the Department of Labor's advisory committee on health problems associated with pesticides, consultants representing Shell Oil, Dow Chemical, Du Pont and the Manufacturing Chemists Association insisted that the pesticides were not carcinogens, but "tumorigens." Tumorigens, they said, induced only localized benign tumors and had no connection with malignancy. Under questioning about potential hazards of these chemicals in the workplace, both Dow and Du Pont admitted that they routinely destroyed workers' records after ten years of employment.45

A group recently formed to represent industry in workplace issues is the American Industrial Health Council (AIHC). Started by the Manufacturing Chemists Association, the AIHC challenges connections between industrial pollution and the nationwide increase in cancer rates. In 1900, cancer caused 4% of all deaths; by 1968, this had increased to about 20%, the second leading cause of all deaths.46 AIHC attributes the increase to increased longevity and personal habits such as cigarette smoking. The organization's approach may best be illustrated by a statement by one of its consultants before the Labor Department's advisory committee:

Cancer in its many forms is undoubtedly a natural disease. It is probably one of nature's many ways of eliminating sexually effete individuals who would otherwise, in nature's view, compete for available resources without advantage to the species as a whole.47
It is apparent from the preceding discussion that there have been severe occupational health problems in the United States. These problems generally were ignored for years because they often did not affect workers until they had retired or were close to retirement, so industry could afford to ignore them. But the very severity of the problem finally convinced Congress that some form of federal regulation was necessary.
Chapter 2

THE OCCUPATIONAL SAFETY AND HEALTH ACT

Why It Was Passed

Until passage of the OSH Act, there were no concerted workplace regulations at either the state or federal level. Although a number of states had occupational health agencies, they were often understaffed. In 1969, only 38 states operated occupational health programs, and many of these were also responsible for air pollution control and radiological health. Only three states had more than 100 occupational health/safety inspectors. In 1968, there were 1,600 state inspectors and 100 federal inspectors, less than half the number of state and federal fish and game wardens. The Labor Department estimated in 1969 that total state expenditures on workplace safety and health were about $23 million or about 33¢ per worker.

Although the Department of Health, Education and Welfare included several agencies responsible for public health, none had power to inspect workplaces or to enforce standards. The U.S. Public Health Service, for example, could inspect workplaces only if invited to do so by the few states with inspection authority.

The 1935 Walsh-Healey Act, governing the terms of government contracts, stipulated that contractors maintain certain safety conditions, but these were rarely enforced. In 1969, the Bureau of Labor Statistics inspected 5% of the 75,000 firms covered by the law and reported that only two firms had lost government contracts because of safety conditions.
The rising number of accidents and deaths in industry after World War II began to generate interest in regulation of workplace hazards. During the war, there were 20,500 major amputations in all branches of the military; during the same time, there were 65,000 amputations as the result of industrial accidents. More than 25,000 people were killed in the Korean War, compared with 48,750 deaths on the job during the same three-year period. 53

Interestingly, nuclear power facilities were the first industry to be regulated; under the 1954 Atomic Energy Act, standards were established limiting workers' radiation exposure. 54

The ever-increasing number and variety of industrial chemicals also may have promoted concern about the effects of exposure. The 1958 edition of Chemical Sources, an annual publication for chemical buyers, listed 17,000 chemicals; by 1970, it listed 41,000 industrial chemicals. 55

With the improving economic conditions after WWII, unions began paying more attention to health and safety issues. In some cases, locals would strike to improve working conditions. In 1952, for example, mine and mill workers staged a seven-month strike in California over a silicosis-like disease; although the strike did improve working conditions, it received little attention in the national press. 56 By the late 1960s, 65% of collective bargaining agreements contained workplace safety and health stipulations. 57

In February, 1969, West Virginia coal miners went out on a wildcat strike after a fire and explosion in a Consolidation Coal mine killed 78 men. 58 The strike quickly accelerated to include demands that miners suffering from black lung receive workers' compensation. During the
height of the strike, 42,000 of the state's 44,000 coal miners marched on the state capitol demanding compensation provisions. Their efforts resulted in passage of the 1969 Mine Health and Safety Act and the 1972 Black Lung Benefits Act. The event also spurred Congressional action on an occupational safety and health act then being considered.

Senator Hubert Humphrey (D-Minn.) introduced the first bill calling for workplace regulation in 1951, but it went nowhere. Until the 1960s, there were few other such attempts. In 1964, a Presidential Council on occupational safety was convened to discuss non-mining working conditions, but it recommended no particular legislation. In 1965, HEW recommended increased spending to study new health hazards in industry, but could not obtain funding. During that same year, a bill was introduced in the U.S. House of Representatives to regulate hazardous chemicals outside the nuclear industry, but it also was unsuccessful.

In 1966, the McNamara-O'Hara Public Service Contract Act was approved, extending the Walsh-Healey Act to government service suppliers, and in 1968, President Lyndon Johnson proposed a bill similar to the OSH Act, but it was unsuccessful. In 1969, several similar bills were introduced in both the House and the Senate, and President Richard Nixon called for some sort of workplace regulation in his Domestic Programs and Policies Message to Congress in April. There were no Administration legislation proposals until August.

Nixon and the Republicans wanted a national independent occupational safety and health board to set and enforce standards. The Democrats, on the other hand, wanted an enforcement agency in the Department of Labor.
The Democrats apparently believed that an agency within the Labor Department would be less subject to Administration pressures.

How It Was Passed

March, 1970—The House Select Subcommittee on Labor begins hearings on HR 3809, introduced by James O'Hara (D-Mich.). The bill goes through seven versions before being released by the subcommittee.

—The Senate begins hearings on S 2193, introduced by Harrison Williams (D-New Jersey), Edward Kennedy (D-Mass.), Walter Mondale (D-Minn.) and Ralph Yarborough (D-Texas).

April—The House bill goes before the entire committee. The Republicans then introduce a compromise bill setting up an occupational safety and health court similar to the U.S. Tax Court to adjudicate violations. After the committee rejects this and several other amendments, the Republicans stop attending, and the committee does not have a quorum.

June—Finally convincing members to attend, the House committee approves the bill, although only one Republican votes for it. In an appendix to the committee report, 12 of the 15 Republicans on the committee call the bill totally unacceptable, and six sign a statement calling it a "tragedy without equal." At Republican insistence, the Rules Committee refuses to give the bill a hearing until after the summer recess.

September—The Senate version goes before the full Labor Committee, which approves it toward the end of the month. Although scheduled for floor debate, it is postponed at the request of the Republican minority.
October—Senate Majority Leader Mike Mansfield (D-Mont.), angered at the delay, asks for unanimous consent to put aside other pending business because any additional delay would violate the "tacit understanding" on procedures made during the original request for postponement. The Senate then agrees to make the bill pending business after the election recess.

November--The bill passes the Senate on November 16 with a few amendments. The House version reaches the floor the following week and is passed on November 24.

December--The House/Senate conference on the bill begins December 8. It takes five sessions, some as long as seven hours, to reach a compromise. The conference version is adopted 308-60 in the House and accepted in the Senate by a vote of 83-3 after 10 minutes of debate. The Occupational Safety and Health Act, Public Law 91-596, is signed into law on December 29, 1970, covering 4.1 million businesses and 57 million employees.67

What the Bill Does

Although the OSH Act represented a veritable leap forward in regulating workplace hazards, it was an issue of some controversy in Congress, and some of its provisions reflect this. The law did establish the Occupational Safety and Health Administration (OSHA) with clear enforcement powers, but allowed employers a number of appeal routes.

The new law subjected all businesses "affecting interstate commerce" to any standards promulgated by OSHA and entitled employees to basic rights to a safe and healthful environment. As stated in the prologue to the bill:
The Congress declares it to be its purpose and policy . . . to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources.68

The Secretary of Labor is empowered to adopt consensus standards like ANSI's and/or to promulgate new standards based on "research, demonstrations, experiments, and other such information as may be appropriate."69 The law specifically states that these standards will assure "to the extent feasible on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life."70

The law also established the National Institute for Occupational Safety and Health (NIOSH) in the Department of Health, Education and Welfare to provide the research and recommendations needed by OSHA to set standards. The setup seems designed to insure an almost adversary position between the two agencies, limiting the influence of any particular Administration on regulation as a whole.

NIOSH is mandated to publish an annual list of all toxic industrial substances and their known toxicity levels.71 The agency may also inspect workplaces as needed to establish the extent of hazards and is required to give inspection results to both the employer and employees.72

OSHA is empowered to inspect workplaces and to issue citations and fines on the basis of its inspections. Although OSHA may set its own inspection priorities, the law appears to emphasize certain situations. Any employee or employee representative who believes that a violation exists and that that violation threatens physical harm may request an OSHA inspection. OSHA must submit a copy of the request to the employer,
but the employee can stipulate that his/her name not appear on that copy. Representatives of both the employer and employees may accompany an inspector.

The penalties for violations are relatively low, reflecting Congressional intent to avoid intimidating employers:

--- Serious violations: A mandatory civil penalty of up to $1,000 per violation.

--- Non-serious violations: At OSHA's discretion, a civil penalty of up to $1,000 per violation.

--- Repeated violations: A mandatory civil penalty of up to $10,000 per violation.

--- Failure to correct a violation within a specified period: A mandatory civil penalty of no more than $1,000 each day the violation remains uncorrected.

--- Willful violation that results in death: After conviction, a criminal penalty of not more than $10,000 and imprisonment of not more than six months.*

Employers are subject to these fines if they violate any OSHA standards or if they violate Section 5 of the law which states that: "Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees." Called the "general duty" clause, this provision is often used by OSHA inspectors in situations, generally involving safety not health, that are not covered by standards. An OSHA inspector gave the example of a propane business where an inspection revealed gas leaking

*It is probably a comfort to the more nervous employers that the law also stipulates that any inspector "who kills a person while engaged in or on the account of the performance of investigative, inspection or law enforcement functions" shall be subject to criminal prosecution.
from tanks. There is no standard for leaking propane tanks, so the inspector cited the violation as a "recognized hazard" under the general duty clause. 76

If an inspector believes an imminent danger situation exists, that is, a situation which endangers employees' lives, he/she may seek an injunction from a U.S. district court. This was provided for situations so serious that action is needed immediately. The court may issue a temporary restraining order pending the outcome of enforcement proceedings. 77 In an earlier draft of the law, inspectors would have been allowed to issue a closing order 72 hours before the case was tested in court. 78

Imminent danger cases are rare. There has been only one attempt in recent years to get a "cease and desist" injunction in OSHA's Region 8, which includes Montana.* Inspectors sought an injunction against the owner of a plant whose employees were exposed to potentially dangerous ammonia levels. However, the plant exploded, killing the owner, before the injunction was granted. 79

An employer can contest a citation by filing notice with the Occupational Health and Safety Review Commission within 15 working days. The Commission is an independent adjudication board, with six members

*There are ten OSHA regional offices: (1) Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont; (2) New York, New Jersey, Puerto Rico; (3) Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia; (4) Alabama, Florida, Georgia, Kentucky, Mississippi, North and South Carolina, Tennessee; (5) Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin; (6) Arkansas, Louisiana, New Mexico, Oklahoma, Texas; (7) Iowa, Kansas, Missouri, Nebraska; (8) Colorado, Montana, North and South Dakota, Utah, Wyoming; (9) Arizona, California, Hawaii, Nevada; (10) Alaska, Idaho, Oregon, Washington.
appointed by the President for six-year terms. The Commission assigns a judge and a docket number to the case.

The appeals process can be quite lengthy. According to Jerry Atencio, a Region 8 OSHA lawyer, it may take three to six months to schedule a hearing, depending on a judge's case load. After receiving the notice of contest from the employer, usually in the form of a legal brief, OSHA has 20 working days to respond. The judge then sets a schedule, and the hearing is generally held within two months. After the hearing, all parties may take 20 days to file post-hearing briefs, longer if the case is complex. After the judge receives the briefs, he/she begins writing the decision, which may take from 15 days to three months. The judge files the decision with the Review Commission, which may accept the findings or order a Commission hearing of the case.

If the judge rules against the employer, he or she may appeal the case to a federal court of appeals. It is unlikely that the court would rule against the government at this point in the appeals process. As Atencio explained: "The higher up in the appellate system you go, the more likely that you'll get a ruling in favor of administrative discretion."

An employer may also appeal a Review Commission decision in an appeals court. Because administrative channels have been exhausted at this point, Atencio said, the court may be more lenient.

States can develop their own plans to enforce occupational safety and health standards. This section of the OSH Act may represent a compromise with the Republican minority which opposed federal regulation. When submitting their plans, the states must prove that they will be at least as effective as the federal government's, with adequate financing
and standards and enforcement authority.82 Until 1973, any state that wished to submit a state plan could apply for a federal grant to do so.83 The Labor Department would pay up to 90% of the cost to develop the plan and up to 50% of the cost of operating approved state plans.84

Concerned about the lack of reliable injury/illness statistics, Congress also included a provision called for a program to "develop and maintain an effective program of collection, compilation and analysis of occupational safety and health statistics."85 The Labor Department may make grants of up to 50% of total costs to collect such statistics.86 Employers are also required to keep records for OSHA on work-related injuries, illnesses and deaths.87

The act established that employers have specific duties to their employees. They must keep records of employee exposure to potentially dangerous workplace pollutants, and employees must have access to these records. Employers must "promptly" notify any employee who is exposed to levels exceeding OSHA standards.88 Any OSHA pollution standard must include labeling requirements so that employees can know where they are exposed in the workplace, what the symptoms of excessive exposure are and instructions for safe use. The standards may also require employers to pay for employees' medical exams.89 Any employer who violates the posting requirements may be fined up to $1,000 for each violation.90
WORKPLACE REGULATION AFTER THE OSH ACT

Setting Standards

OSHA and NIOSH began their activities during a Republican Administration somewhat ambivalent about workplace regulation. OSHA initially reflected this reluctance and promulgated few new health standards in its early years. Even after the agency began to take a more aggressive stance in the middle 1970s on workplace pollutants, particularly those suspected of causing cancer, industry challenges of new standards appear to be successfully hampering OSHA's ability to promulgate strict pollution controls.

OSHA and NIOSH faced tremendous problems when they first began operating. Testimony during Congressional hearings on the OSH Act revealed that there were only 700 occupational health specialists in the country, and the American Medical Association noted that 5,000 full- or part-time physicians and 10,000 nurses would be needed to deal with workplace safety and health. A 1967 report by the U.S. Surgeon General's office showed that 65% of the workers in the 1,700 plants surveyed were exposed to toxic agents, and only 25% of the workers were adequately protected.

OSHA immediately adopted 4,400 standards, roughly 45% from ANSI and ACGIH; the rest existed already under the Walsh-Healey Act, the Construction Safety Act and the Longshoring Safety Act. About 400 of these were health standards. As mentioned, most of these health standards
protected workers only from outright poisoning and did not include consideration of long-term effects.

OSHA can promulgate new standards to replace these interim standards, but the process is lengthy, sometimes taking more than a year. First, NIOSH must issue a criteria document—a survey of the available literature on the health effects of the substance being considered. NIOSH may also grant contracts to outside consultants to do parts of the criteria document. Because the industrial health field has been dominated by industry, many of the consultants initially hired by the agency had close industry ties, and their recommendations sometimes reflected this.

In 1972, NIOSH gave a contract to Clayton and Associates to develop criteria to regulate benzene, which is known to induce anemia and/or leukemia. Clayton formed an advisory committee for the project whose members included the chief of Shell Oil's industrial hygiene department, the former chief toxicologist for ESSO Research and Engineering Company and representatives from the Manufacturing Chemists Association and the American Steel Institute. Clayton later proposed a benzene standard $2\frac{1}{2}$ times higher than that proposed by both ANSI and the International Labor Organization, an informal affiliate of the United Nations. Only after the AFL-CIO Industrial Union Department submitted a formal complaint to NIOSH did Clayton recommend a stricter standard.94

After NIOSH releases the criteria document, OSHA convenes an advisory committee with representatives from government, industry, labor and the medical profession to determine an appropriate exposure level. In reviewing NIOSH's recommendations and OSHA's standards, this author has noticed that OSHA seldom adopts a standard as strict as that proposed by
NIOSH. The Labor Department usually considers the availability and costs of different compliance methods and the feasibility of various exposure limits. For example, theoretically there should be no exposure to a known carcinogen, such as benzene and arsenic, but unless a substance is banned, OSHA must set some exposure limitation.

After the advisory committee recommends a standard, the Labor Department must publish the standard in the Federal Register within 60 days. After publication, there is a 30-day period for written comments. Those who believe that they will be adversely affected by the standard may petition for review in a federal court of appeals within 60 days after the standard is promulgated. Often, those challenging a standard will also seek an injunction against enforcement of it. Currently, three standards are at least partially stayed—benzene, lead and arsenic.

By the end of 1974, OSHA had promulgated only four major standards, regulating mechanical power presses, asbestos, a package of 14 carcinogens and vinyl chloride. The primary problem faced by OSHA, and to some extent NIOSH, was that its first six years were under two consecutive conservative Administrations. The very lack of workplace regulation before OSHA made the new standards and enforcement of them an almost radical issue. Many businessmen saw the OSH Act as yet another federal attempt to limit free enterprise. In 1972 alone, the Montana Congressional delegation received 500 letters complaining about OSHA inspections. But the state AFL-CIO reported that there had been only 91 inspections in Montana during that year.

The Nixon Administration used the furor over OSHA to political advantage. Watergate investigators found a memo from George Guenther,
the first Nixon-appointed OSHA administrator, stating that the agency would table action on "highly controversial standards" during the 1972 Presidential campaign. The memo also suggested that fund raisers should stress the advantages of four more years of weakened OSHA enforcement under a Republican Administration.  

In 1973, rumors abounded that the Nixon Administration wanted to merge HEW and the Labor Department to create a more manageable agency. Although this never materialized, NIOSH was transferred from HEW's Health Services and Mental Health Administration to the Center for Disease Control, losing both direct access to the Secretary of HEW and 50 of its 650 employees.

During the Ford Administration, OSHA proposed a cotton dust standard of 200 micrograms per cubic meter to protect textile workers from byssinosis or "brown lung." The agency revised the standard to 500 micrograms after industry protests that compliance costs would total $2.7 billion.

In April, 1976, the United Rubber, Cork, Linoleum and Plastic Workers asked Secretary of Labor William Usery to issue an emergency benzene standard, authorized if workers are "exposed to grave danger from exposure to substances or agents determined to be toxic or physically harmful." Usery denied the union's request in May.

According to a study by the U.S. General Accounting Office, OSHA concentrated on safety rather than health issues during its first five years. Of the 2,271 inspection records GAO reviewed, only 26% mentioned high risk substances, and 12 of the regulated carcinogens were not mentioned at all.
After President Jimmy Carter took office in 1977, OSHA began to take a more aggressive stance on workplace health issues. The agency's apparent reluctance to promulgate new standards was beginning to attract criticism. The consensus standards setting organizations themselves had revised some of their standards on the basis of new scientific evidence. For example, the ACGIH standard for cadmium, a lethal trace element, is now .05 mg/m³; OSHA's is .1 mg, the value adopted in 1971. ACGIH's standard for malathion, a pesticide and suspected carcinogen is 10 mg; OSHA's is 15 mg. 104

Carter-appointed OSHA administrator Eula Bingham announced in June, 1977, that the agency would concentrate on serious health hazards, stating that "That means cutting out the Mickey Mouse and focusing on the truly hazardous situations that make people sick and die." Bingham also announced an emergency standard for Benzene, lowering allowable levels from 10 ppm to 1 ppm. 105

As part of an attempt to curb industry criticism, OSHA also eliminated 1,000 "nit-picking" standards, such as rules telling employers how to select toilet seats. 106

The agency began to promulgate standards more rapidly. A permanent benzene standard was promulgated in late 1977, and both the lead and arsenic standards were announced in 1978.

However, OSHA immediately ran into challenges focusing on the cost of compliance with its new standards. In a continuation of the cotton dust controversy, the President's Council on Economic Affairs asked the agency to prepare a less costly alternative to the 500 microgram standard.
Bingham threatened to resign. The Administration backed off, and OSHA promulgated the standard in June, 1978.

But the main challenge of OSHA's standards is that the agency refuses to do a traditional cost/benefit analysis. Although it does submit an Economic Impact Statement describing the costs of a standard and its probable impact on affected industries, it does not explain in detail the future benefits of the standard, arguing that many of the health effects are unknown. In its economic justification OSHA simply cites probable future benefits. When defending the lead standard, for example, the director of OSHA health standards said that 10,000 cases of kidney disease requiring dialysis were directly attributable to excessive lead exposure and noted that dialysis costs $50,000 per patient annually.

When OSHA first began promulgating standards, and ending up in court defending them, the courts by-and-large granted the agency a fair amount of administrative discretion. In 1974, the D.C. Court of Appeals ruled against the AFL-CIO, which had challenged OSHA's decision to allow asbestos industries a certain number of years to comply with the standard. The court noted that:

... some of the questions involved in the promulgation of these standards are on the frontiers of scientific knowledge, and consequently, insufficient data is presently available to make a fully informed factual decision. Decision making in that circumstance depends to a greater extent on policy judgments and less upon purely factual analysis.

The court noted that there was little information about the effects of various asbestos levels, but that the Secretary of Labor must be able to establish some permissible level. When examining the term "feasible," the court said that the act was not intended to justify "immediate imple-
mentation of all protective measures technologically feasible without regard for their economic impact." 111

But the court obviously did not believe that the promulgation process must be subject to a rigid cost/benefit analysis. It noted that there could be some inevitable closures among individual employers who lagged behind the rest of the industry technologically and therefore could not cope with pollution control requirements. The court stated that OSHA could consider the ability of the entire industry to compete in the market, but that "These tentative examples are not offered to illustrate concrete examples of economic unfeasibility, but rather to suggest the complex elements that may be relevant to such a determination." 112

In March, 1975, OSHA won another victory when the Second Circuit Court upheld the vinyl chloride standard, stating that it was proper to set a low exposure limit when it was clear that the chemical was hazardous, but there was no conclusive evidence supporting any particular level as safe. The court rejected attacks on the standard's feasibility, holding that the Secretary of Labor may set a standard which forces the development of new technology. The consortium of plastic and chemical companies challenging the standard appealed the decision, but the Supreme Court denied review. 113

In 1978, the Third Circuit dismissed a challenge by the American Iron and Steel Institute of the coke oven standard, which regulates hydrocarbon emissions. The court's ruling established that: (1) OSHA's determination that coke oven standards are carcinogenic was supported by substantial evidence, and (2) the plaintiffs had been unable to prove that the standard imperiled the steel industry's existence. The court
accepted the need for a cost/benefit evaluation, but implicitly denied
the need for justification of precise future benefit:

Although we are very sensitive to the financial implications
of the standard and have endeavored to carefully weigh its
effects upon the well-being of the industry, we are not per-
suaded that its implementation would precipitate anything
approaching the "massive dislocation" which would character-
ize an economically infeasible standard.114

During that same year came the decision in the Fifth Circuit Court,
which has been notably hostile to OSHA, granting an injunction against
the benzene standard because the agency did not specify the value of
expected benefits. OSHA reduced allowable levels to 1 ppm because the
chemical is a carcinogen and because 600,000 workers in 150,000 work-
placed are exposed to it.115

The standard was challenged by the American Petroleum Institute,
which argued that OSHA had failed to show that the standard fulfilled
the requirements of Section 3(8). This section states that a standard
"requires conditions, or the adoption of use of one or more practices,
means, methods, operations, or processes, reasonably necessary or appro-
priate to provide safe and healthful employment . . ." (emphasis added).
The term "reasonably necessary," the Institute insisted, meant that OSHA
would have to show that the expected benefits of the standard exceeded
the costs.116

The Fifth Circuit agreed. OSHA had assessed compliance costs of
the standard—$187 to $205 million first-year operating costs, $266
million in engineering controls, and $34 million recurring annual costs—
deciding that the standard was feasible because it didn't threaten the
welfare of the affected firms or the economy in general. The agency
flatly refused to provide detailed estimates of future benefits, stating simply that benefits "may be appreciable" because benzene is a proven carcinogen at current exposure levels.\textsuperscript{117}

The Fifth Circuit ruled that OSHA did not have the authority "to create absolutely risk-free workplaces regardless of cost" and that the agency must determine whether the benefits expected from the standard bear a reasonable relationship to the costs imposed. The only way, the court said, to tell whether the relationship between costs and benefits is reasonable is to outline both. Rejecting OSHA's argument that it can be assumed that lower levels of a known carcinogen are beneficial, the court said "... mere rationality is not equivalent to substantial evidence that conditions required by the standard are reasonably necessary."\textsuperscript{118}

In an interesting twist of logic, the court ruled that although OSHA did not have to wait for a pattern of excess cancer deaths to lower a standard, a lack of information on the effects of lower exposure limits could not be used to justify a standard. The court suggested that laboratory animal experiments or extrapolation of deaths caused by higher exposure levels be used. The court also specifically refused to reconcile its decision with the vinyl chloride, asbestos and coke oven emission standards upheld by other circuit courts, stating that these decisions did not address Congressional intent.\textsuperscript{119}

OSHA appealed the decision to the Supreme Court, with the AFL-CIO as an intervenor. Arguments were heard in early 1980, but the Court did not rule on the case until July 2, 1980, and its decision was by no means clearcut. The Court was split 5 to 4, with Chief Justice Burger and Justices Stevens, Stewart, Powell and Rehnquist upholding the Fifth
Circuit ruling, and Justices Marshall, Brennan, White and Blackman dissenting. Even the majority could not agree on all of the issues, and while concurring with the majority decision, Justices Burger, Powell and Rehnquist all wrote separate opinions.

The Court did not address the need for a cost/benefit analysis of the OSHA standard, instead ruling that a standard is not "reasonably necessary and appropriate" unless OSHA can prove that exposure to levels above the proposed standard pose a significant risk. The Court said that OSHA had not proved that benzene concentrations above 1 ppm represented a clear threat to workers' health:

'Safe' is not the equivalent of 'risk-free.' ... a workplace can hardly be considered 'unsafe' unless it threatens the workers with a significant risk of harm. Therefore, before he can promulgate any permanent health or safety standard, the Secretary (of Labor) is required to make a threshold finding that a place of employment is unsafe—in the sense that significant risks are present and can be eliminated or lessened by a change in practices.\textsuperscript{120}

The Court flatly refused to rule on the need for a cost/benefit evaluation until OSHA could establish that the standard would protect workers from a significant risk. However, the majority's decision indicates de facto support for such a requirement: The Court noted that because gas station employees are not covered by the benzene standard, only 35,000 workers would be affected and compliance costs would be about $82,000 per worker.\textsuperscript{121}

The minority opinion, written by Justice Marshall, chastised the majority for what it called a flagrant disregard for traditional restrictions on judicial authority. The dissenters stated that in cases where scientific evidence could not establish a clear level at which damage to
health would not occur, OSHA had a Congressional mandate to set standards on the basis of the best available evidence, even if that evidence is inconclusive:

Nothing in the Act purports to prevent the Secretary from acting when definitive information as to the quantity of a standard's benefits is unavailable. Where, as here, the deficiency in knowledge relates to the extent of the benefits rather than their existence, I see no reason to hold that the Secretary has exceeded his statutory authority.122

The benzene case was expected to set a precedent for OSHA's ability to set occupational health standards. However, the ruling appears ambivalent at best, and it is probable that future court cases will decide the issue.

OSHA had not ignored cost/benefit considerations before the benzene case. The agency was fairly careful to consider the costs and industry-wide effects of standard compliance, and, on occasion, was willing to limit engineering controls, particularly in safety issues. This is apparent in OSHA's attempts to control workplace noise. The standard for noise is 90 decibels, eight-hour average. In 1972, NIOSH proposed an eight-hour standard of 85 dBA. A level of 85 dBA has half the energy and sounds 75% as loud as 90 dBA. According to an OSHA study, the compliance costs of NIOSH's proposed standard would have been between $13.5 billion and $31.6 billion, and OSHA decided to leave the standard unchanged, but required more intensive monitoring of noise levels and workers' hearing losses.123

The Review Commission has also ruled in favor of proven cost effectiveness of engineering controls, often requiring a feasibility (cost/benefit) test. One example is a Montana case in which the
Hoerner Waldorf pulp and paper mill appealed citations alleging excessive noise levels and a lack of engineering or administrative controls (administrative controls include moving workers who are "overexposed" to pollution or noise). Although the Commission noted that the company's industrial hygenist seemed to have made no attempt to assess the feasibility of various control techniques and that "his approach was diffident and carefully hedged," it agreed with the company's contention that OSHA must prove engineering feasibility: "When failure to use engineering controls is charged, complainant must establish that such methods exist and that their utilization would be reasonably expected to produce a significant result."^{124}

In a March, 1979, ruling, the Sixth Circuit Court reiterated this view and noted that "A consensus is developing among the circuits (courts) that the term (feasibility) should encompass both technological and economic feasibility." The case involved a company appealing engineering noise controls. The company did not contest the noise levels cited by OSHA, and OSHA did not contest the company's contention that ear muffs reduced noise levels to acceptable limits, but demanded engineering controls. The court cited a Review Commission decision in which the Commission ruled that controls can be required even if they are expensive and increase production costs, "But they will not be required without regard to the costs which must be incurred and the benefits they will achieve. In determining whether controls are economically feasible, all the relevant cost and benefit factors must be weighed." The court stated that the fact that an employer can afford controls cannot be used as a standard's sole justification.^{125}
Recent court decisions upholding cost/benefit requirements may severely constrain OSHA's ability to regulate workplace health hazards in the future. The ability of an agency responsible for the health and safety of more than 60 million workers to conduct extensive economic studies for each standard it promulgates is doubtful, especially since, according to the General Accounting Office, "At the current rate of standards development, it may take 100 years or more to develop needed health standards."\(^{126}\)

Calculating the possible benefits of pollution reduction is a relatively new art and subject to widely differing estimates. A study done for the Council on Environmental Quality reported that estimates of the health benefits of controlling air pollution from stationary sources ranged from $1.8 billion to $14.4 billion.\(^{127}\)

Traditional cost/benefit analyses use a combination of economic predictions and policy decisions. For example, government decision makers considering approval of a proposed power plant will look at the need for the power, the possible environmental effects, the cost of the facility and public support for the project. If the project is to be economically feasible, expected benefits must exceed the initial investment and future maintenance costs. The system depends on the ability of decision makers to anticipate total costs and total benefits, and both can be difficult. Initial analysis of a power plant's future detriments may overstate costs because of future technology that could allow pollution control equipment to increase production efficiency or use waste for other commercial products. Conversely, benefits may be exaggerated: Coal mining associated with the power plant could pollute local ground-
water, damaging agricultural production, or the plant's pollution could cause long-term unexpected damage to plants and animals.

The ability of unanticipated effects to greatly increase the future costs of a project is becoming more apparent in a society which is only now feeling the effects of decisions made decades ago. A recent and pertinent example is the Love Canal tragedy. The Hooker Chemical Company used the canal in Niagara Falls as a chemical dump for several years after World War II. In 1953, the company sold the canal to the city, which later constructed a school on the site. In 1979, residents were first told that the area was contaminated by toxic wastes and later told that tests showed several people had chromosome damage, all the result of decisions made a quarter of a century ago.128

It is the unknown future costs of current exposure that OSHA seems trying to avoid by setting limits that it apparently cannot justify using traditional cost/benefit analyses. The agency's stance is that little is understood about the long-term response to many chemicals now in use. The benzene standard, for example, was promulgated in response to disease rates among workers exposed in the 1940s. According to a 1978 HEW report, the incidence of cancer attributable to occupational exposure to all industrial chemicals is at least 20%. Previous estimates of work-related cancer ranged from 1% to 10%.129

Thus, neither OSHA nor NIOSH can predict the exact benefits of limiting exposure to many suspected carcinogens; it is nearly impossible given the state of present medical knowledge and the plethora of new chemicals being introduced into industrial processes. NIOSH has compiled a list of 28,000 toxic chemicals, 2,200 of them suspected carcinogens.130
Recently, there have been a few attempts to calculate the future health consequences of present pollution exposure. The National Academy of Sciences, for example, suggests using a probability theory. To use its example, pesticides, it could be decided that there was a 90% chance that pesticides would cause no additional deaths, a 5% chance that exposure would cause 10 deaths, and 5% that it would cause 100 deaths, thus resulting in the formula: \(0.9 \times 0 + 0.05 \times 10 + 0.05 \times 100 = \) a probability of 5.5 excess deaths. A value could then be assigned to each excess death and compared with the economic loss of banning the chemical.  

Again, this method assumes sufficient medical knowledge to assign a probability to the effects of any given chemical.

Even future costs can be difficult to determine. Industries which may have to install control equipment because of an environmental standard may exaggerate the probable expense. The Kennecott Copper Company, for example, replaced the furnace system in one of its smelters with a modern, less polluting system and claimed that its pollution abatement costs were $280 million. But a study by the Stanford Research Institute reported that actual controls cost only $88 million.  

Ironically, both the federal and Montana ambient air quality laws stipulate, or have been interpreted to stipulate, that standards set to protect human health should not be subject to economic considerations. The federal law calls for primary air quality standards which "are requisite to protect the public health" (emphasis added). Although the law also contains provisions for advisory committees on proposed standards to consider health, social and economic effects, Ken Alchema
of the Environmental Protection Agency said that the agency assumes that human health concerns need not be balanced against costs.\textsuperscript{134}

The Montana Clean Air Act statement of policy and purpose requires the state to: "achieve and maintain such levels of air quality as will protect human health and safety and, to the greatest degree practicable, prevent injury to plant and animal life and property . . . ." According to Frank Crowley, a lawyer for the state Department of Health, state standards to protect human health are not subject, at least theoretically, to cost/benefit questions.\textsuperscript{135}

Both federal and state air quality laws allow much lower levels than workplace standards. For example, the Montana standard for total suspended particulate is 160 micrograms per cubic meter (24-hour average). The particulate standard in the workplace, not including silica or coal dust, is 15,000 micrograms. By comparison, the particulate crisis level in Missoula County is 625 micrograms, and the highest level reached in Missoula after the May 18, 1980, eruption of Mt. Saint Helens was 19,228 micrograms.\textsuperscript{136} Yet OSHA may not be able to require controls to reach even these levels if current court decisions stand.

\textbf{Enforcement}

The authority to inspect workplaces is the key to OSHA's enforcement powers. Before 1971, the government could not inspect most workplaces or

\textsuperscript{*Not everyone agrees with this interpretation. In June, 1980, the legislature's Administrative Code Committee ordered the Department of Health to conduct an economic impact study of the state's new air quality standards. Although the state Board of Health, which must approve the standards, has decided not to require the study, the issue may well end up in court.}
enforce standards. The OSH Act allowed the government for the first time to require industry to provide healthful working environments. It appears, however, that at least until recently, OSHA inspections have not focused on the most severe workplace hazards, those affecting workers' health.

In 1972, OSHA made 36,100 inspections, for a total of 125,000 violations and a proposed $3,121,000 in fines. This is an average of $25 per violation. More than half of the inspections were done at employee request; of these, 65% involved safety conditions and 35% involved health.

In 1975, OSHA conducted 88,781 inspections. There are no data on the percentage of health versus safety inspection, but it is significant that only 2.5% of the citations were for serious violations. The average fine was $112.

OSHA's initial approach to workplace hazards was cautious. In 1971, the Oil, Chemical and Atomic Workers (OCAW) union requested an imminent danger inspection at a New Jersey Mobil refinery where workers were exposed to asbestos, sulfuric acid, benzene, hydrogen sulfide and other hazardous substances. The union asked Dr. Selikoff to examine the workers, and he found several cases of lung abnormalities suggesting the onset of asbestosis.

OSHA did not respond to the request for two weeks. During the 28-day inspection, the inspectors presented management with a schedule of areas they wished to visit each day, giving the company time to clean up or move people out of dangerous areas. OSHA cited 354 violations, only 12 of them involving health, and fined the company $7,300. Although the agency concentrated on safety rather than health conditions, two workers
were killed in a fire and explosion at the refinery in May, 1972. OSHA fined the company $1,215 for the two deaths. 140

NIOSH also sometimes showed the same cautious attitude. In 1972, two NIOSH hygenists wrote to their associate director about some severe health problems they suspected were associated with beryllium levels in a Pennsylvania plant, and they suggested more inspections. The reply was in the form of a policy memorandum:

It is not the intent, nor the policy, of NIOSH to convey to the outside world that our role under the OSHA of 1970 is one having authority for enforcement. Rather, we must present an image more in keeping with that of a research agency. 141

It is perhaps unfair to criticize the performance of two fledgling agencies under a conservative Administration. In 1971, there were 456 inspectors; 142 in 1977, there were 2,849, still a small number considering the size of the workforce—more than 60 million workers. 143 NIOSH's 1974 appropriation was $28 million, 144 compared with almost $50 million in 1977. 145

It is also likely that many of the people working for OSHA and NIOSH in their early years may have been frustrated by industry opposition and the lack of Administration support. As Dr. William M. Johnson, a NIOSH hygenist in the early 1970s and now an associate professor in environmental health at the University of Washington, put it:

... I'm afraid of becoming frustrated and fatigued in this field and of becoming part of the fabric of how things are done in a large bureaucracy. You see, the way things are set up in occupational health these days, it's all too easy for a man to look at the welter of problems waiting solution, to realize the lack of any intention on the part of many people in government and industry to take any significant action to remedy them and to say to himself, "Well, I can't do anything on my own, so I might as well sit back and fit into the world." 146
It is perhaps OSHA's "schizophrenic" approach to inspection priorities that has garnered the most criticism. Although the agency supposedly assigned top priority to hazardous industries, the 1975 President's Report on Occupational Safety and Health showed that 21% of the inspections resulted in no citations and 56% in no penalties. For an agency under fire for nit-picking standards and needless harassment of business, this indicates an approach almost guaranteed to further anger businessmen without really addressing the more severe workplace hazards.

OSHA's most severe critic, outside of organized labor, has been the General Accounting Office (GAO). The GAO has issued at least six reports on workplace regulation, and all focus either on a lack of agency direction or poor use of its own authority.

GAO noted that OSHA has concentrated on safety issues. In a review of 2,271 inspection records, the GAO reported that high-risk substances were mentioned in only 26%, and 12 of the 16 carcinogens were not mentioned at all. Fifty percent of the files did not mention health hazards. Reporting irately that OSHA and state hygenists had inspected less than 1% of the nation's workplaces by 1977, the GAO stated that OSHA makes little use of data already available. The carcinogen standards require employers using or producing such substances to report their location and the number of people employed to the nearest OSHA area office. OSHA officials told the GAO that they had not gathered copies of these reports in the national office and did not know how many employers had sent in such reports.

The GAO was also critical of NIOSH. Under its Health Hazard Evaluation Program, NIOSH can respond to employer/employee requests to
determine whether there are harmful substances in the workplace. Between 1971 and 1977, the agency had received only 892 requests and completed only 380 evaluations. About half of these found exposure of potentially harmful levels of various pollutants. 149

GAO complained that NIOSH made little attempt to publicize the evaluation service; NIOSH argued that although it contacts unions, industry and professional groups, it doesn't want the extra workload widespread publicity would bring. But the GAO insisted that:

We believe the program should be made known to all employers and employees—not just those who belong to unions or industry groups or who employ industrial hygienists. While the program has been promulgated in the Federal Register, we doubt if most workers or employers are aware of the Federal Register. 150

The GAO study also found that only half of the 65 health evaluations it surveyed included medical examinations and that NIOSH rarely if ever conducted followup inspections. 151 According to Bobby Gunter, a NIOSH hygenist responsible for the evaluation program in OSHA Regions 8, 9 and 10, the agency never does followup inspections unless contacted by an employer or employee. He also said that medical exams were conducted only if it was apparent that health problems existed. Citing NIOSH's December, 1978, evaluation of the Stauffer Chemical Company near Butte, Gunter said that the company had an adequate medical program and a very good respirator program, including weekly visits by a dentist to check for phossy jaw, a degenerative bone disease caused by exposure to elemental phosphorus. Because of this, NIOSH did not do any medical exams at the plant. 152

However, a review of NIOSH's evaluation report on Stauffer shows that workers were exposed to phosphorus pentoxide levels above the OSHA
standard of 1,000 micrograms, although elemental phosphorus levels were below applicable standards. The evaluation report included a footnote below each table of pollution levels which exceeded standards noting that "workers wore respirators when working in contaminated air." The respirator program may have been the result of an earlier OSHA inspection and resulting fine of $2,240 for inadequate ventilation and lack of respirators.

Gunter said most of the evaluation requests he receives are from management. He said that NIOSH evaluations essentially provided a free consulting service for employers, providing information about possible violations and how to correct them, thus saving thousands of dollars in consulting fees.

The NIOSH health hazard evaluations are a valuable source of information about the kind and extent of workplace health problems. The NIOSH hygenists sometimes are able to detect potential health problems which might be passed over by OSHA inspectors, whose training is more often in engineering. Although NIOSH does send its evaluation reports to OSHA, it does not combine reports on similar industries, a practice which could provide industry-wide epidemiology studies.

Another major problem with the NIOSH evaluations is that the agency does not inform workers about changes in health standards. For example, NIOSH told workers exposed to benzene that workplace levels did not exceed the 10 ppm standard. OSHA later reduced allowable benzene levels to 1 ppm, but NIOSH did not tell the workers that the standard had changed or that they were exposed to benzene above that level.
Interestingly, despite the GAO's contention in several reports that both OSHA and NIOSH often did not respond adequately to potential workplace hazards or to workers' right to information about these hazards, it was critical of OSHA's tendency to respond to most worker requests for inspections. In a review of 267 employee complaint inspections, the GAO said that only 65 were from high-risk industries. Almost 70% of the complaints involved non-serious violations and only 1% involved imminent danger situations.\textsuperscript{157}

Harry Hutton, the OSHA area office director in Billings, said that because of this type of criticism and a move to put more emphasis on problem industries, OSHA is putting less emphasis on worker inspection requests. He said that his office usually responded to formal union requests. If, however, a request comes from an individual employee, OSHA often responds by informing the employer about the violation, without identifying the employee. The office then informs the employee that the employer has been notified and asks him/her to report back if the situation is not corrected. "This doesn't mean we downplay employee requests," Hutton said. "We look into all of them. We just don't send someone in to (inspect) each one."\textsuperscript{158}

Perhaps the most serious allegation about OSHA's enforcement responsibilities is its widespread approval of state enforcement plans. As mentioned, Section 18 of the OSH Act allows states to submit plans to take over OSHA functions. The states must prove that their enforcement and standards would be as effective as OSHA's and that they would receive adequate funding and authority from the state legislatures. Section 23 also provides that states submitting plans could receive up to 90% of
development costs if they applied by 1973 and operating costs of up to 50% thereafter.

Obviously, this was a rather lucrative opportunity. Montana alone received $224,000 in planning grant funds and $263,000 in operating funds. All but five states submitted plans, and the Labor Department had spent $79 million on the program by June, 1976.

Apparently regarding state plans as a means to curtail industry opposition to workplace regulation, the Nixon Administration proposed that states without approved plans by 1973 be allowed to operate their own regulation programs until their plans were approved. The AFL-CIO and the United Steelworkers successfully petitioned for an injunction against this plan.

By 1976, 24 states had approved plans. States have three years to complete developmental steps after they begin operating an approved plan. OSHA cannot make a final determination on a plan's effectiveness until the program is completed. In a 1976 report, the GAO said that OSHA usually monitored a state for two years after a state program was fully operational. Thus, it could take up to five years before a final determination on a state plan is made.

After reviewing the approved state plans, the GAO reported that OSHA had no specific guidelines on adequate standards. Eighteen of the states had no provisions prohibiting advance notice of inspection or discrimination against employees requesting inspections. Twelve states did not have authority to fine violating businesses, and seven did not guarantee employees the right to accompany inspectors. Severely criticizing OSHA's apparent willingness to hand over worker protection to unprepared states,
the GAO noted that states can get approved plans simply by including provisions for future development of OSHA's requirements.  

In a 1978 study of OSHA's workplace inspection program, the GAO again questioned the effectiveness of state regulation, reporting that the average violations cited in a state inspection were 3.3 compared with 11.3 average violations cited in inspections in which an OSHA inspector accompanied the state officers.

Unions widely opposed state-operated plans. In Montana, whose plan was approved by OSHA in 1973, pressure from state unions convinced the 1974 legislature to deny authority and funding for a state program. State AFL-CIO Secretary Jim Murry called state enforcement "lousy" and claimed that the industrial fatality rate in Montana was 1/3 higher than the national average. The OCAW sent a telegram to the 1973 legislature deploring a state plan and stating that: "This position is based on a long record of disappointment over how badly disabled oil workers have fared at the hands of the state workmen's compensation agencies."

That same year, the Anaconda local of the United Steelworkers passed a resolution, to be forwarded to legislators by the AFL-CIO, declaring that:

Whereas that department which has served us so poorly all the many years now proposes that it be given authority to administer a state plan of the federal Occupational Safety and Health Act . . . we request our legislative delegation to in every way oppose giving to the workmen's compensation division the administration of a state OSHA program such as is contemplated.

The successful union drive against a state occupational health program may have been the result of state occupational health agencies' reluctance to alienate state industries, an attitude that is still
apparent. The Bureau of Safety and Health, in the state's Department of Labor and Industry, has some enforceable standards. But Bureau chief Max Salazar admits that his agency has never assessed a penalty. Under the law, the citation must be approved by the county attorney in the county where the accident took place—sometimes a difficult matter, according to Salazar. But he also said that his agency likes to keep a "low profile." "Our program has to have backing," Salazar said. "What we want is compliance, not a lot of fines."166

Larry Lloyd, chief of the Occupational Health Bureau in the Department of Health and Environmental Sciences, also stressed cooperation. His agency, which has no enforcement powers, monitors safety and health conditions in state and local government and is also responsible for home conditions and radiological health. The agency also inspects private businesses at employer/employee request to investigate problems that could lead to OSHA citations. As Lloyd put it: "We're interested in health, not police work. We've not had any trouble with compliance. We don't beat their heads in like OSHA."167

Another option available to employers cited by OSHA is to seek a variance from the controls required to meet a standard. Employers can get a variance if they can prove that they can't comply with a standard because of a lack of materials or because the actual construction of the controls cannot be completed by the required date. A variance may be given for no more than one year and cannot be renewed more than twice.168

Originally, the Review Commission approved or denied all variance requests. In 1975, the Commission ruled that OSHA could approve variances. But only the Commission can deny them, and it has been lenient. Of 7,000
abatement extension requests received between March, 1975 and June, 1976, OSHA recommended denial in only 160 cases, and the Commission denied none of the requests. \(^{169}\)

The previous discussion makes it apparent that OSHA has in many respects not taken full advantage of the enforcement powers stipulated in the OSH Act. Not only has the agency avoided confrontation with the really hazardous industries in the United States, it has relinquished much of its power to state agencies which may be unprepared or unwilling to take an aggressive stance on occupational health issues. As will be discussed later, both OSHA and NIOSH seem to be improving their inspection priorities, but it has taken them nearly 10 years to do so.

To illustrate the problems sometimes faced by OSHA, and the length of time it can take to force a single industrial facility to comply with OSHA standards, it is useful to examine a single compliance effort.

**A Sample Compliance Effort**

Because of the number of chemicals released during the smelting process, copper smelters are among the most hazardous industries in the nation. These problems are worsened by the fact that most copper smelters are antiquated facilities, with outdated and fairly dirty production processes. For these reasons, copper smelters, including the Anaconda copper smelter which this paper will discuss, have received a fair amount of OSHA attention.

The Anaconda company is one of Montana's largest employers, employing about 1,000 people in the copper smelter alone. \(^{170}\) It also has a long history of confrontation with state and federal regulatory agencies. For nearly eight years, the Environmental Protection Agency has been trying
to get an adequate state implementation plan to control sulfur dioxide and particulate in the Anaconda area, finally promulgating one in January, 1980.\footnote{171}

Also useful for the purposes of this paper is the fact that INFORM, a non-profit research group based in New York City, did an in-depth study in 1978 of the occupational health problems in U.S. copper smelters. Their study not only explains production processes, it examines OSHA inspection reports, companies' medical programs and union involvement in occupational health issues.

The smelter and the town of Anaconda have been studied by a number of state and federal agencies. A study of lung cancer mortality among smelter workers, including those at the Anaconda smelter, was the basis of the recognition that arsenic is a human carcinogen and convinced OSHA to lower the arsenic standard to 10 micrograms per cubic meter.\footnote{172} The ACGIH standard, adopted by OSHA in 1971, was 500 micrograms, which prevented only skin diseases and outright poisoning. The standard was based on a 1963 study by the only commercial U.S. arsenic producer and compared cancer rates in two groups of workers at the plant, one group supposedly unexposed. However, in a 1969 review of the study, the National Cancer Institute discovered that it did not compare lung cancer rates with workers outside of the facility.\footnote{173}

The smelter worker study examined lung cancer rates among workers employed between 1938 and 1963 when arsenic exposure ranged from 290 to 11,270 micrograms. The study found Anaconda workers had lung cancer rates three times the state average; among those exposed to the highest arsenic levels, the lung cancer rate was eight times the national average.\footnote{174}
The study did not identify any of the smelters studied. Despite attempts by Montana Senator Lee Metcalf to find out whether the study included Anaconda workers, HEW refused to identify any of the companies when the study was first released because of industrial privacy.\textsuperscript{175}

The health problems in the copper industry are similar to those in the steel industry. Both constructed many of their facilities in the early 1900s, and have simply built on to or remodeled existing facilities. This haphazard evolution has resulted in economic problems for both industries, which find themselves unable to compete with their more efficient European and Japanese counterparts.

According to a 1973 NIOSH study of exposure levels in U.S. copper smelters, most of the 15 primary smelters were constructed at least 50 years ago. The study found that in half of the smelters that processed high-arsenic ore, in-plant arsenic levels were above the then-recommended NIOSH standard of 50 micrograms.\textsuperscript{176}

The arsenic exposure in copper smelters is attributable to the high amount of arsenic in much of the ore, which ranges from .002% to 12% after the ore has been concentrated for smelting.\textsuperscript{177} Arsenic in ore at the Anaconda smelter averages about .96%, a level second only to ore at ASARCO's Tacoma smelter.\textsuperscript{178}

OSHA has inspected the Anaconda smelter 19 times, more than any other copper smelter.\textsuperscript{179} This may be a result of more lax inspection in other copper states. In Arizona, for example, which has an approved state enforcement plan, the state does not inspect smelters, leaving that to OSHA. New Mexico inspects only in cases of worker complaint or fatalities.\textsuperscript{180}
But the Anaconda smelter is one of the dirtiest U.S. copper smelters. Between 1974 and 1976, injury and illness rates at the smelter were 12% higher than the copper industry average.\footnote{181}

Because of the amount and variety of smelter pollutants, including arsenic, sulfur dioxide, cadmium, lead and others, the potential health problems faced by smelter workers are well recognized by OSHA. Although, as mentioned, the agency tends to stress safety over health, of the 84 copper smelter inspections OSHA conducted between 1972 and 1978, 49% investigated health violations, compared with a national average of 17%.\footnote{182}

OSHA received a union request to inspect the smelter in May, 1971, only a month after the OSH Act went into effect (Table 1). Although the smelter apparently was inspected, OSHA had not formally adopted any standards, much less promulgated any of its own, and there were no citations.

The second OSHA inspection resulted in 19 non-serious citations for health conditions and a $235 fine. The company immediately contested the citations, claiming that engineering controls for noise and dust were not feasible. According to Susan Schermerhorn of OSHA's Region 8 Technical Support Office, companies often contest hygiene violation, even those carrying a small fine, because acknowledging a violation means they may have to install some sort of controls. By contesting the violations, she said, companies can usually get an extended abatement date, which in this case, the company did.\footnote{183}

Another inspection in 1973, done at employee request, found only one violation. Although it was cited as serious, it was a safety violation. OSHA found no health violations, despite workers' complaints about
Table 1

Summary of Safety and Health Regulatory Agency Inspections

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Findings</th>
<th>Penalties</th>
<th>Follow-up</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/22/73</td>
<td>Complaint</td>
<td>NO SPECIFIC STANDARDS IN EFFECT</td>
<td>AT THE TIME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/25/73 -</td>
<td>General</td>
<td>18 non-serious violations</td>
<td>3/3/73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/25/74</td>
<td>schedule</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6/28/73</td>
<td>Complaint</td>
<td>1 serious violation</td>
<td>$800</td>
<td>Violation abated</td>
<td>Guamard in crane area. No violations pertaining to complaints for serious noise, sulfur dioxide, dust, and fume</td>
</tr>
<tr>
<td>health</td>
<td></td>
<td></td>
<td></td>
<td>7/2/75</td>
<td></td>
</tr>
<tr>
<td>7/2/73</td>
<td>Follow-up</td>
<td>In compliance</td>
<td>----</td>
<td>----</td>
<td>Follow-up on crane guardrails</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4/75 -</td>
<td>General</td>
<td>21 non-serious violations</td>
<td>$25</td>
<td>Violations abated</td>
<td>Guamardas, shields, etc.</td>
</tr>
<tr>
<td>3/7/75</td>
<td>schedule</td>
<td></td>
<td></td>
<td>9/15/75</td>
<td></td>
</tr>
<tr>
<td>safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/7/75 -</td>
<td>Complaint</td>
<td>In compliance</td>
<td>----</td>
<td>----</td>
<td>Complaint about health conditions</td>
</tr>
<tr>
<td>3/11/75</td>
<td>health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9/9/76 -</td>
<td>General</td>
<td>4 willful</td>
<td>$45,055</td>
<td>Interim OSHA</td>
<td>Cited for arsenic, copper, lead dust and respirator violations; asbestos storage, handling and monitoring; noise</td>
</tr>
<tr>
<td>2/13/76</td>
<td>schedule</td>
<td></td>
<td></td>
<td>inspections as per terms and conditions set forth in settlement</td>
<td></td>
</tr>
<tr>
<td>health</td>
<td></td>
<td></td>
<td></td>
<td>Final penalty</td>
<td></td>
</tr>
<tr>
<td>10/1/76</td>
<td>9 serious</td>
<td>6 repeated</td>
<td>$28,815</td>
<td>$45,055</td>
<td></td>
</tr>
<tr>
<td>10/2/76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/13/76</td>
<td>Follow-up</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>Interim follow-up of 9/9/76 - 3/11/76 inspection</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/16/76</td>
<td>Accident</td>
<td>1 other violation</td>
<td>$10</td>
<td>Company abatement</td>
<td>Failure to complete a written engineering survey before starting demolition work.</td>
</tr>
<tr>
<td>6/27/76</td>
<td>fatality</td>
<td></td>
<td></td>
<td>letter</td>
<td>Inspector concluded that accidental death was due to employees' insubordination</td>
</tr>
<tr>
<td>3/28/77</td>
<td>Complaint</td>
<td>1 serious violation</td>
<td>$200</td>
<td>3/28/77</td>
<td>Convartor crane access gates not in place. Crane violations: lack of load markings, guardrails and electrical violations</td>
</tr>
<tr>
<td>health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/5/77</td>
<td>Follow-up</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>Interim follow-up inspection of 9/9/76 - 3/11/76 inspection</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/1/77</td>
<td>Complaint</td>
<td>4 other violations</td>
<td>None</td>
<td>Company abatement</td>
<td>All violations to be abated by 3/27/78</td>
</tr>
<tr>
<td>2/20/78</td>
<td>health</td>
<td></td>
<td></td>
<td>letter</td>
<td></td>
</tr>
<tr>
<td>12/32/77</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
excessive noise, SO$_2$, dust and fumes. It is important to remember that the arsenic standard at the time was 500 micrograms, 50 times higher than the present standard. As late as 1977, monitoring systems could not detect arsenic levels below 150 micrograms.

Until 1976, then, OSHA did little to monitor potential health hazards at the smelter. A March, 1975, inspection, done in response to workers' complaints about health conditions, resulted in no citations or fines. In fact, according to the INFORM study, the OSHA office refused to release most of the inspection results. This may be partly due to the fact that the complaint also claimed that a worker was fired after "exercising employee rights under the OSH Act," and the office wanted to protect the worker. Another possibility is that OSHA used its 1975 findings as the basis for a five-month inspection it conducted from September, 1975, to February, 1976, which resulted in a $45,000 fine, later lowered to $28,645, for four willful violations, six repeated violations, nine serious violations and 16 non-serious violations.

The company was cited for excessive arsenic, lead and copper dust exposures and an inadequate respiratory program. Although this author does not have the exact levels found in this inspection, arsenic levels had to be more than 500 micrograms and lead levels more than 200 micrograms (the current lead standard is 50 micrograms. A NIOSH health hazard evaluation, conducted at worker request, found no violations of the arsenic standard, but reported that workers in the converter aisle, near the smelting furnaces, were exposed to levels between 50 and 70 micrograms, five and seven times higher than the current standard. NIOSH did not monitor SO$_2$ exposure because it was not specified in the union request, but the report noted that about 80% of the converter aisle workers
complained about eye, nose and throat irritation and 50% to 60% about lower respiratory tract infections, all typical responses to excessive SO₂ exposure.*

After the 1975-76 inspection and fine, the Anaconda Company began attempts to lower arsenic and noise levels in the smelter. Hoods were put on the ore concentrate and conveyor belt transfer points to control dust emissions. Local exhaust systems were installed around the furnaces to prevent pressure inside them from forcing pollutants into the work area, and hoods were installed both at the matte-tapping points (where molten ore is "drained" to be taken to another furnace) and around the ore ladles. The crane cabs in the converter area were covered and ventilated, and the converter furnace itself has a primary hood to capture emissions.186

Between 1976 and 1978, OSHA conducted five follow-up inspections to check abatement progress, responded to five complaints and investigated one fatality. During all of these inspections, the company was fined a total of $480, only $60 of which was for excessive exposure. Apparently, the company's engineering controls and improved respirator program allowed it to meet the relatively lenient 500 microgram standard.

*Until recently, both OSHA and NIOSH have placed little emphasis on sulfur dioxide exposure. The standard, unchanged since 1971, is 5 ppm, although OSHA now wants to lower it to 2 ppm. There is growing evidence that SO₂ acts synergistically with some substances such as arsenic, increasing their carcinogen potential. This lack of emphasis may be a result of the fact that high in-plant SO₂ levels often occur in conjunction with more dangerous substances which merit agency attention. Also, because SO₂ is an irritant, workers will usually wear respirators when levels reach about 3 ppm. Other substances such as arsenic may have no immediate unpleasant effects, and workers are willing to tolerate higher and more dangerous levels.
In its 1977-78 study of copper smelters, INFORM used several criteria to evaluate performance. The group rated arsenic levels at and above the proposed arsenic standard as high exposure; very high exposure was 50 micrograms. Sulfur dioxide levels between 2 ppm and 5 ppm were considered high, and anything above 5 ppm was very high. Thus, its evaluation of the smelter environment may give a more realistic picture of health conditions than the fact that Anaconda was in compliance with OSHA standards.

INFORM reported that almost all workers at the smelter were exposed to less than 290 micrograms of arsenic, well below the standard, but at least 20% were exposed to more than 50 micrograms. Another 20%, most of them workers in ore concentrate handling and around the electric furnace, were exposed to more than 100 micrograms of lead. INFORM did not check SO$_2$ levels, but it estimated that because of similar processes used in other smelters with SO$_2$ problems, close to 50% of the Anaconda workers were exposed to hazardous sulfur dioxide levels.

Perhaps the most interesting aspect of the INFORM study is that it emphasizes that it measured minimal not optimal activities necessary to protect workers' health. Only the Anaconda smelter and one of Kennecott Copper's smelters met 80% of INFORM's minimal criteria. Besides documenting exposure levels, INFORM also evaluated in-plant industrial hygiene programs and worker participation in health issues. Again, the study looked for minimal efforts. For example, when evaluating a company's medical program, the company simply counted the number of health personnel employed, not whether they were qualified or had adequate authority. The study reported that it was nearly impossible
to evaluate medical personnel's authority because of very limited cooperation from the copper companies.

It also noted that health personnel may be responsible for both the smelter and other aspects of the copper industry, such as mining and air pollution controls, so numbers may overestimate the company's program. The Anaconda Company employs an industrial hygienist, who spends about 75% of his time on worker health. The study said that until recently, medical services at the smelter were poor, with an on-site clinic, but no resident physician. Only workers in the baghouse, a control process designed to capture dust, and those exposed to asbestos were given medical exams; these were paid for by the company, but workers had to go on their own time. 190

The new arsenic standard requires employers to provide yearly medical exams to all workers exposed to more than five micrograms. The exams must include X-rays, nasal and skin examinations and sputum tests. The physician is then to write an opinion for the employer about any possible job-related health conditions. The employer must give the employee a copy of this report. The physician has a fair amount of latitude in determining whether an ailment is related to occupational exposure and could be subject to some employer pressure: One section of the standard reads "The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure. 191

The Anaconda Company had attempted to weaken the medical stipulation in the arsenic standard. In 1975, the company, in conjunction with the Smelter Environmental Research Association, commissioned the University
of Utah Medical Center to study potential health problems among the workers. The preliminary findings of the study reported that "significantly fewer arsenic-exposed workers have evidence of inflammation of excess amounts of white blood cells in their sputum (a possible sign of lung cancer) than the controls." Anaconda presented the study at the OSHA hearings on the proposed arsenic standard as evidence that proposed medical monitoring was unnecessary. However, other medical experts disputed that study, and the medical exam requirements were included in the standard.192

Because of the standard's requirements, the Anaconda Company hired the Tabershaw Occupational Medicine Association to perform medical exams and explain the results to the workers.193

In November, 1978, OSHA began its first inspection of the smelter under the new arsenic standard. Conducted over a five-month period, the inspection was OSHA's first attempt in the nation to enforce the new standard.194

According to Dave DiTommaso, the industrial hygienist in charge of the inspection, an inspection is not a matter of walking into a facility, setting up a few monitors, taking a few readings and then deciding where to cite a violation. First, he said, an inspector simply walks around the plant to become familiar with its layout and processes. Then he/she may set up monitors to determine levels in different areas and find out where potential problems are. OSHA cannot cite an employer for pollutant levels in a plant; inspectors must prove that employees are exposed to levels above the applicable standards. Thus, in some cases, pollution levels may be above the standard, but the employer will not be cited if
employees wear respirators that prevent inhalation of more than the allowable level. The arsenic standard stipulates that respirators can be used as a primary control only in areas where engineering controls are not feasible.

To monitor employee exposure, OSHA hygenists asked workers to wear individual samplers during their work day. The samplers operate on basically the same principle as the high volume samplers used to measure ambient particulate levels: Air is pulled into the sampler and through a filter designed to capture various pollutants. OSHA sends the filters to its lab in Salt Lake City for analysis.

The OSHA inspectors also accompanied many of the workers throughout the day to find out which areas they worked in. Copper smelting is a "batch" process—the ore is processed through several furnaces. Some workers will follow the material through these processes, so the inspectors must be aware of where workers may be exposed.

The OSHA inspection report showed that the highest arsenic levels (not exposures) were around the electric furnace, the baghouse and, to a lesser extent, the converter area. Most were above the current standard, but all were well below the old standard. The extent of the problem is best illustrated by the levels found in the lunchroom near the electric furnace—120 and 140 micrograms. Even the baghouse lunchroom was lower at 26 micrograms.

The OSHA inspection found that workers in the baghouse and around the electric furnace received the highest arsenic exposures. In the baghouse, exposures ranged from 24 to 450 micrograms. It is ironic that the pollution control devices to limit emissions outside the workplace
can worsen conditions for the workers who must clean and maintain them. Workers around the electric furnace were exposed to between 30 and 300 micrograms, although one worker was exposed to 1,172 micrograms.

Although many of the workers wore respirators, OSHA issued citations for their exposure. This is partially because the company is required to use engineering controls. But it is also apparent in the citation report that OSHA was dissatisfied with the company's respirator program. Respirators were not always used and were sometimes stored in contaminated areas. The inspector discovered that respirators used in the baghouse were stored on a floor grating contaminated by arsenic. The company had not fitted the respirators to each worker and had not instructed workers how to use them properly.

OSHA also cited the company because it did not provide the workers with clean protective clothing at least once a week. The arsenic standard requires protective clothing, laundered regularly at the facility, to protect both the workers and to prevent them from bringing the clothing home. This is not a matter of small concern. It is believed that cases of mesothelioma among the families of asbestos workers were caused by exposure to asbestos brought home in the workers' clothes.

Although it assigned no penalty, OSHA cited Anaconda for failing to tell its employees where the high arsenic levels were and that they have a right to medical surveillance.

Anaconda was cited for 24 hygiene violations, with a $2,760 fine, and 60 safety violations, with a $2,600 fine. Ten of the violations were serious, and of these, four received a penalty of $480 each for arsenic exposure, an inadequate respirator program and allowing workers to eat,
drink and smoke in high arsenic areas. The other six citations, with fines of $100 each, were for violations of the engineering control requirements, lack of protective clothing and failing to inform employees about health hazards.

The company immediately contested the hygiene citations and the fine. It claimed that it had fit and trained 300 of 800 workers with respirators, but that since training took 15 minutes per worker, it had not had enough time to complete the respirator program. OSHA ordered the company to meet the standard by October, 1979, to label all arsenic storage containers by June, 1979, and to provide protective clothing and clean up its lunchrooms immediately. The company claimed that these abatement dates were not feasible.

The appeal never went before a Review Commission judge, and OSHA lawyers began negotiating a settlement. According to DiTommaso, this is not an unusual procedure. He said that although a judge must review the final settlement, judges rarely dispute a compromise.

The agreement was not reached until June, 1980, when OSHA agreed to lower the fine to $1,260. Anaconda submitted a compliance plan, including engineering studies by the American Lurgi Corporation and Flour/Furokawa, the two firms also hired by the company to design controls to meet state and federal air quality standards. Anaconda agreed to complete the compliance program by early 1982. OSHA, however, stated that it would not agree to accept the completed compliance plant as fulfillment of the arsenic standard's requirements.

After 10 years of inspection activities, the Anaconda smelter is just beginning to comply with standards designed to protect its workers.
The company has understandably dragged its feet about complying with standards that may cost it several million dollars; after all, all of the OSHA citations in the past 10 years cost the company only $34,485, considerably less than the cost of adequate pollution controls.

This discussion of efforts to clean up the Anaconda smelter illustrates not only the length of time it can take to force a large company to begin to comply with workplace regulations, but also the very serious hazards faced by workers in the facility. The cancer rates among these workers are obviously phenomenal, and the pollution levels they are exposed to currently are far higher than levels allowable under state and federal standards. For example, the new Montana standard for lead is 1.5 micrograms, compared with the new OSHA standard of 50 micrograms.

Assuming the best, by 1982, Anaconda workers will be working in an environment considered safe according to current scientific knowledge. According to Larry Krivan, an Anaconda Company hygenist, the company plans to meet the OSHA compliance deadlines. Krivan also said that the company will contract with area physicians to conduct needed medical exams; he said Anaconda probably will not hire an in-plant physician because his/her findings could be considered biased.

If there is a lower dose/response relationship at lower arsenic levels, Anaconda's adherence to the new standard may curb the astronomically high lung cancer rates among smelter workers. This assumes that: (1) arsenic is not carcinogenic at relatively low levels, and (2) the company will make a concerted effort to improve workplace conditions. The company's motives on that score are somewhat in doubt. In testimony submitted on Montana's proposed air quality standards, for
example, the company tried to refute an economic study of the health
effects of air pollution commissioned by the state Department of Health
and Environmental Sciences. The company attacked the study, including
its assertion that a human life is worth $300,000. Quoting a political
economist at the Harvard School of Public Health, the Anaconda testimony
stated:

The (study) assumes a value for one life of $300,000 instead of
a more accurate value of $50,000. The estimate is based on the
work of Thaler and Rosen who studied the premiums required by
young workers to enter hazardous occupations. It is too high
for older workers who are not economically productive.
Chapter 4

WORKERS' COMPENSATION

What would happen if an Anaconda smelter worker with lung cancer filed a claim with the state Workers' Compensation Division? The answer is, a very interesting test case. According to Norm Grosfield, former administrator of the Division, no one has ever received compensation for lung cancer in Montana, and he doesn't believe anyone has even applied. This is the case in most compensation systems in the United States.

The problem is establishing a cause/effect relationship. All compensation statutes require that injuries or illnesses be work-related. If a worker is hit by a truck at work, breaking his leg, the causal relationship is clear. But if a worker were to claim that his lung cancer was the result of occupational exposure, even in an industry with high cancer rates among its employees, he would have a difficult time proving that his particular case was work-related.

The problem is illustrated by cases under the Montana silicosis compensation system. The silicosis fund was established in 1937, but because of opposition from the Anaconda Company, benefits were paid out of the general fund, not the compensation division. Initial benefits were $30 a month. The present compensation division now covers silicosis, so workers can apply to either fund.

Although the statutes specifically mention silicosis as a compensable disease, getting benefits is not always easy. The symptoms of silicosis are difficult to distinguish from those of emphysema. Grosfield said
that benefits are often awarded because the claimant worked in a job known to be associated with silicosis, such as underground mining, rather than because the worker could prove his disease was silicosis. He said that company lawyers will sometimes argue that a worker's smoking habits caused the disease. As a result, it may be decided that occupational exposure caused, say, 50% of the disease. The worker would then receive 50% of total possible benefits.

Because of the increasing number of studies linking disease, particularly cancer, with job exposure, some states have amended their compensation statutes to include occupational diseases. New York, for example, compensates aniline dye workers who develop bladder cancer.201

Most states, however, do not compensate many occupational diseases. South Carolina, for example, does not compensate workers with byssinosis or "brown lung,"202 although it is estimated that 35,000 workers suffer from this disease.203

A recent Labor Department study of occupational disease and state compensation reported that almost two million workers are disabled by occupational disease.204 But only 5% of these workers receive compensation benefits.205 In fiscal year 1977-78, disease accounted for only .6% of the injury data collected by the Montana compensation division.206

The irony is that compensation claims are used as part of a system to define the extent of occupational injuries, illnesses and deaths. Section 24 of the OSH Act requires the Labor Department to develop a statistical system to compile injury/illness data. The Department is authorized to make grants to states, covering up to 90% of their initial costs, to establish such statistical programs. The Department also pays
up to 50% of the costs of the developed program, another financial bonanza for the states.

The statistical program, under the Bureau of Labor Statistics, uses two methods to gather information. The first, which is used as the basis for the annual BLS report on nationwide injury/illness rates, is an annual survey of selected industries. According to Elliot Brower, the BLS Regional Commissioner for the Rocky Mountain states, the statistical methods in the survey, started in 1972, are not comparable to former methods. Thus, it is difficult to compare past and present rates. In fact, the statistical methods used by the BLS were revised four times between 1926 and 1967.

The BLS compiles the employer reports in the survey and uses these to identify hazardous industries. OSHA, in theory, can then use this information to set inspection priorities. But the GAO reports that the illness categories used by the BLS are too broad to adequately characterize real disease problems. The illness categories are: Skin diseases, dust diseases of the lung, respiratory problems due to toxic agents, poisoning, disorders due to physical agents, disorders due to repeated trauma, and "all other occupational diseases." The GAO pointed out that dust diseases, for example, would include silicosis, asbestosis and byssinosis. Poisoning would include overexposure to lead, carbon monoxide, hydrogen sulfide, pesticides and any number of other chemicals. Thus, the survey tends to give a very general picture of disease rates, with most diseases representing acute cases.

This is apparent in the statistics themselves. Table 2 shows the industries with the highest injury and illness rates, as reported in a
### Table 2

**Industries with Highest Injury and Illness Incidence Rates, United States, 1976**

<table>
<thead>
<tr>
<th>SIC code</th>
<th>Industry</th>
<th>Incidence rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Meatpacking plants</td>
<td>34.7</td>
</tr>
<tr>
<td>2429</td>
<td>Special product sawmills, n.e.c</td>
<td>34.5</td>
</tr>
<tr>
<td>2451</td>
<td>Mobile homes</td>
<td>32.0</td>
</tr>
<tr>
<td>3792</td>
<td>Travel trailers and campers</td>
<td>30.3</td>
</tr>
<tr>
<td>3715</td>
<td>Truck trailers</td>
<td>29.3</td>
</tr>
<tr>
<td>3325</td>
<td>Steel foundries, n.e.c</td>
<td>28.4</td>
</tr>
<tr>
<td>334</td>
<td>Secondary nonferrous metals</td>
<td>27.5</td>
</tr>
<tr>
<td>11</td>
<td>Anthracite mining</td>
<td>27.4</td>
</tr>
<tr>
<td>2452</td>
<td>Prefabricated wood buildings</td>
<td>27.2</td>
</tr>
<tr>
<td>2077</td>
<td>Animal and marine fats and oils</td>
<td>27.1</td>
</tr>
<tr>
<td>3321</td>
<td>Gray iron foundries</td>
<td>26.9</td>
</tr>
<tr>
<td>3732</td>
<td>Boatbuilding and repairing</td>
<td>26.0</td>
</tr>
<tr>
<td>3316</td>
<td>Cold finishing of steel shapes</td>
<td>25.9</td>
</tr>
<tr>
<td>2063</td>
<td>Malt</td>
<td>25.8</td>
</tr>
<tr>
<td>2086</td>
<td>Bottled and canned soft drinks</td>
<td>25.6</td>
</tr>
<tr>
<td>3261</td>
<td>Vitreous plumbing fixtures</td>
<td>25.5</td>
</tr>
<tr>
<td>2291</td>
<td>Felt goods, except woven felts and hats</td>
<td>25.1</td>
</tr>
<tr>
<td>3241</td>
<td>Logging camps and logging contractors</td>
<td>25.1</td>
</tr>
<tr>
<td>311</td>
<td>Leather tanning and finishing</td>
<td>24.4</td>
</tr>
<tr>
<td>3638</td>
<td>Household appliances, n.e.c</td>
<td>24.2</td>
</tr>
</tbody>
</table>

2. Incidence rate represents the number of injuries and illnesses per 100 full-time workers. See appendix D.

NOTE: n.e.c. = not elsewhere classified.

### Table 3

**Industries with Highest Illness Incidence Rates, United States, 1976**

<table>
<thead>
<tr>
<th>SIC code</th>
<th>Industry</th>
<th>Incidence rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2679</td>
<td>Agricultural chemicals, n.e.c</td>
<td>13.2</td>
</tr>
<tr>
<td>3484</td>
<td>Small arms</td>
<td>12.8</td>
</tr>
<tr>
<td>2441</td>
<td>Polishes and sanitation goods</td>
<td>12.5</td>
</tr>
<tr>
<td>3675</td>
<td>Electronic capacitors</td>
<td>11.8</td>
</tr>
<tr>
<td>3769</td>
<td>Space vehicle equipment, n.e.c</td>
<td>11.4</td>
</tr>
<tr>
<td>3876</td>
<td>Electronic resistors</td>
<td>11.1</td>
</tr>
<tr>
<td>3875</td>
<td>Ophthalmic goods</td>
<td>10.9</td>
</tr>
<tr>
<td>2865</td>
<td>Cyclic crudes and intermediates</td>
<td>10.8</td>
</tr>
<tr>
<td>2816</td>
<td>Inorganic pigments</td>
<td>10.2</td>
</tr>
<tr>
<td>3677</td>
<td>Electronic coils and transformers</td>
<td>10.2</td>
</tr>
<tr>
<td>3914</td>
<td>Silverware and plated ware</td>
<td>10.1</td>
</tr>
<tr>
<td>3681</td>
<td>Telephone and telegraph apparatus</td>
<td>9.4</td>
</tr>
<tr>
<td>3632</td>
<td>Household refrigerators and freezers</td>
<td>9.3</td>
</tr>
<tr>
<td>2833</td>
<td>Medicinals and botanicals</td>
<td>9.1</td>
</tr>
<tr>
<td>3635</td>
<td>Household vacuum cleaners</td>
<td>8.9</td>
</tr>
<tr>
<td>3679</td>
<td>Electronic components, n.e.c</td>
<td>8.9</td>
</tr>
<tr>
<td>3546</td>
<td>Power driven hand tools</td>
<td>8.7</td>
</tr>
<tr>
<td>302</td>
<td>Rubber and plastics footwear</td>
<td>8.5</td>
</tr>
<tr>
<td>3822</td>
<td>Environmental controls</td>
<td>8.5</td>
</tr>
<tr>
<td>3621</td>
<td>Motors and generators</td>
<td>7.8</td>
</tr>
</tbody>
</table>

2. Incidence rate represents the number of illnesses per 100 full-time workers. See appendix D.

NOTE: n.e.c. = not elsewhere classified.
The industries include steel foundries, secondary non-ferrous smelters and anthracite coal mining, all of which are known to have severe health problems, particularly lung cancer. However, in Table 3, which shows industries with the highest illness rates, none of these three industries is included. The information in Table 3 strongly indicates that the reported illnesses are acute or immediate symptoms of exposure. Most of the industries listed involve exposure to caustic agents or fumes.

The Labor Department study said that the BLS survey seldom reports occupational cancer. In fact, the most common reported occupational illness is skin disease.

The other data-gathering system used by the BLS is the Supplementary Data System, which uses workers' compensation claims. As mentioned, the Labor Department initially funded 90% of the cost to set up this system and now pays up to 50% of operating costs. About 23 states, including Montana, participate in this program. Thirty-six states initially applied for and received funding. By 1975, this had dropped to 27 states receiving 50% funding. In its first report from this program, the BLS used data from only 10 states.

The BLS established guidelines for a uniform method of coding, processing and tabulating data among the participating states. The program is still in an experimental stage, but already NIOSH has questioned its usefulness because compensation systems are geared toward proving benefits, not gathering statistics.

Another complicating factor is that a worker must file a claim within a certain time after he/she leaves a job to receive benefits.
This time period varies from state to state. In Montana, a worker filing for disease compensation must do so within three years after he/she leaves the job; those claiming silicosis benefits have four years. In New York, there is no time limit, as long as workers file within 90 days after they become disabled by the disease. Thus, the SDS statistics do not include most of those workers who develop occupational illnesses some years after they retire.

In Montana, disease victims must prove they are totally disabled before they can receive benefits. Injured workers can receive benefits for both partial and total disability. However, both ill and injured workers can receive unlimited medical benefits.

Although all compensation laws include provisions for liberal interpretation, it is difficult to prove that a disease with a long latency period is occupationally related. For one thing, diseases such as lung cancer are not unique to particular occupations as is angiosarcoma, for example, an extremely rare cancer found among workers exposed to vinyl chloride. Many diseases may result from a combination of occupational exposure and workers' personal habits such as cigarette smoking. It is doubtful that any physician would be willing to state unequivocally that a case of lung cancer was caused by arsenic exposure.

The Montana law requires that "Occupational diseases shall be deemed to arise out of the employment only if:

--there is a direct causal connection between the conditions under which the work is performed and the occupational disease;

--the disease can be seen to have followed as a natural incident of the work as a result of the exposure occasioned by the nature of the employment;
— the disease can be fairly traced to the employment as the proximate cause;
— the disease does not come from a hazard to which workmen would have been equally exposed outside of the employment;
— the disease is incidental to the character of the business and not independent of the relation of employer and employee."218

It is often possible in the case of chronic disease to prove that outside influences were at least partially responsible. Grosfield said that his experience has been that physicians are generally conservative. He said that "You can usually get a 'possibly' out of them, but under the law you need a preponderance of evidence. You need a 'probably' not a 'possibility.'"

Also, most physicians are not trained to suspect a connection between their patient's occupation and particular diseases. According to NIOSH, a "competent" medical person in occupational health must be aware not only of workers' personal and family medical histories, but of the chemicals to which they are exposed and their possible effects.219 According to a 1975 survey by the Public Health Service, Montana had only one doctor trained in occupational medicine, and he was between 65 and 75 years old.220

Because state compensation systems generally do not cover many diseases now believed to be occupationally related, many workers are denied benefits and medical treatment. The burden on the workers and on society is considerable. According to the Labor Department study, only 1.7% of the disability awards under compensation in 1978 were for occupational disease.221 The study also reported that 53% of the workers severely disabled by occupational disease are supported by social
security, 21% by pensions, 17% by veterans' benefits, 16% by welfare, 5% by compensation and 1% by private insurance. According to the Labor Department, occupational disease is costing the social security and welfare systems about $2.2 billion annually.222

Those workers eligible for social security receive annual payments of about $3,900.223 By contrast, under the Montana compensation law, benefits may be up to 2/3 of a totally disabled workers' weekly wages at the time of disablement, not to exceed $198 a week as of June 30, 1980.224 Although it appears that workers fare better monetarily on compensation than on social security, benefits vary from state to state. Most states use the 2/3 of original income guideline, but this is not always the case. In 1978, maximum weekly benefits ranged from $87.50 in Arkansas to $654 in Alaska.225

This is complicated by the insurance options open to employers. As mentioned, only six states require employers to insure through the state fund. Other states allow state insurance, private insurance and self-insurance.

Most employers opt for coverage through the state or private insurance companies, probably because self insurers must prove their solvency and post a bond equal to a certain percentage of their payroll. In fiscal year, 1977-78, only 65 Montana employers were self-insured; 9,824 had private insurance and 18,735 were enrolled in the state fund.226

State programs appear to be more cost-efficient than private insurance companies. Although the state program receives no general fund monies, it need cover only its basic operating expenses, while a private company must make a profit. In the monopolistic Ohio system, for example,
96% of its premiums go to benefits and medical expenses, compared with a 53% average for private insurance companies. According to John King, chief statistician at the Montana Workers' Compensation Division, the Montana agency uses about 15% of its income for overhead, while a private insurance company must make about 35% of its premiums in profit.

The defects of state compensation systems were addressed in Section 27 of the OSH Act which states that: "The Congress hereby finds and declares that...

in recent years, serious questions have been raised concerning the fairness and adequacy of present workmen's compensation laws in the light of the growth of the economy, the changing nature of the labor force, increases in medical knowledge, changes in the hazards associated with various types of employment, new technology creating new risks and health and safety, and increases in the general level of wages and the cost of living."

Section 27 directed the President to appoint a 15-member National Commission on state workmen's compensation laws to evaluate the adequacy of current compensation systems. By July, 1972, the Commission was to present its findings and recommendations to the Congress and the President. The Commission was to evaluate amount and duration of medical and compensation benefits, requirements for qualifying for compensation, types of coverage, and the relationship between compensation and other disability programs such as social security.

The National Commission issued 84 recommendations in its 1972 report, 19 of which it considered the "essential recommendations for a workmen's compensation program." Most of these "essential" recommendations were already incorporated in the more progressive state systems. These included coverage of household and agricultural workers and professional
athletes and a mandatory stipulation that maximum weekly benefits be at least 2/3 of a worker's gross weekly pay. The Commission also stressed that "all states provide full coverage for work-related disease."

The Commission obviously regarded the remaining 65 "desirable but not essential" recommendations part of a future effort to improve compensation systems. Envisioned was an increase in maximum weekly benefits to 80% of a worker's "spendable weekly earnings." These "desirable" recommendations also reflected an increasing awareness of occupational disease problems. The Commission wanted to see professional "disability evaluation units" set up in compensation agencies to determine the relationship of disease to employment. Recognizing the problem Grosfield mentioned—the need for a preponderance of evidence in disease cases—the Commission recommended that "full compensation benefits be paid for an impairment or death resulting from both work-related and nonwork-related causes if the work-related factor was a significant cause of the impairment or death."

The Commission also recommended that a claimant be allowed to file a claim three years "after the claimant knew or, by exercise of reasonable diligence should have known, of the impairment and its possible relationship to his employment."

Other Commission recommendations included more lenient benefits to survivors, better and mandatory rehabilitation programs, evaluation of current insurance programs to determine whether state, private or self-insurance were more effective, and programs to insure that employees are aware of their rights under compensation systems.

In 1973, Senators Harrison Williams of New Jersey and Jacob Javits of New York introduced the National Workers' Compensation Act to implement
the National Commission's recommendations. The bill, which recognized that "injuries, diseases and deaths arising out of and in the course of employment, constitute a burden upon interstate commerce and have a substantial adverse effect upon the general welfare," would have required workers' compensation systems to include "universal coverage of employees and work-related injuries and disease, substantial protection against interruption of income, provision of prompt and adequate medical care and rehabilitation services in order to correct work-related injuries and to restore such injured workers to gainful employment, encouragement of safety, and an effective system for delivery of benefits and services."

The bill called for certain standards for compensation systems, including the 2/3 maximum weekly benefit, unlimited medical treatment, mandatory rehabilitation services and periodic adjustment of benefits to reflect increases in state average weekly wages. The bill also would have required HEW, through NIOSH, to recommend ways in which to determine whether a disease is occupationally-related. On the basis of these recommendations, OSHA would be able to promulgate standards which mentioned specific diseases associated with the substance. In other words, OSHA could establish presumptions about the origin of occupational diseases.

President Nixon refused to endorse the compensation bill, but asked states to voluntarily reform their compensation systems to meet the 19 "essential" recommendations. The bill was widely opposed by industry. The U.S. Chamber of Commerce estimated that expanding compensation systems to cover disease would cost an additional $40 billion annually, which, as Daniel Berman points out, "makes sense if occupational disease kills 100,000 people a year."
The bill was re-introduced in 1975 in both the House and the Senate, but again failed. There has been no further action on the legislation to date.
Chapter 5

CONCLUSION-CURRENT DEVELOPMENTS

OSHA and NIOSH

OSHA's ten-year history is characterized by slow progress away from its initial caution and lack of direction and by numerous, often successful industry challenges of its authority. As mentioned, a number of court cases have seriously threatened the agency's ability to set standards to protect workers from occupational diseases.

OSHA's ability to inspect workplaces has also been attacked in the courts. The agency's authority to make unannounced inspections was challenged by an Idaho firm, and in June, 1978, the U.S. Supreme Court ruled that warrantless inspections violate employers' Constitutional rights. However, the Court ruled that OSHA need obtain only an ex parte warrant—which doesn't require the knowledge of the party to be served and need only demonstrate probable cause for inspection.

According to an industrial hygenist in the Billings area office, inspectors don't need a warrant unless an employer demands one. He said that if an employer uses a warrant request to gain time, OSHA may take him/her to court for "concealment."

It is important to remember that OSHA and NIOSH are fledgling agencies which began operating during a conservative Administration that was philosophically, if not overtly, opposed to extensive federal regulation of industry. After emerging from this dampening influence, both agencies have begun tentative efforts to more aggressively address
workplace health conditions. What is perhaps most encouraging is that these steps are being taken in spite of the many legal setbacks.

After OSHA Administrator Eula Bingham took office in 1977, she announced that OSHA general inspections would begin focusing on particularly hazardous industries, with special emphasis on exposure to silica, lead, mercury, benzene and pesticides. Although the Anaconda case history indicates that OSHA has been less patient with employers slow to clean up their facilities, inspection priorities appear to be left largely to the OSHA area offices.

Harry Hutton, director of the Billings area office, said that he does not receive direct suggestions from the national or regional offices to concentrate on certain industries. But, he said, area offices are encouraged to identify and focus on the hazardous industries in their areas. Hutton said that after the Billings office was opened in 1971-72, he used state Department of Commerce data to discover county business patterns. He then checked the classified section of phone books to find the major local businesses and contacted the Chamber of Commerce to get industry size information.

Hutton said his office initially used information supplied by the state Workers' Compensation Division, which provided "very adequate" injury rates. But he said that compensation data are now too limited for OSHA purposes. The state uses Standard Industrial Classification (SIC) codes to classify injury/illness rates in various industries. But the state uses a three-digit code instead of the more precise four-digit code. Hutton explained that a three-digit code would show, for example, that a particular business was involved in meat processing,
but a four-digit code would identify the business as meat packing, poultry processing, etc. 235

Thus, it appears that although OSHA may be shifting its attention to health issues, it is a vague policy, transmitted through a sort of osmosis to area offices without precise directives on priorities.

The agency is making a more directed effort to improve its standard-setting process. Obviously realizing that its standard-by-standard promulgation process could take years to cover the many toxic substances that need regulation, OSHA announced in January, 1980, that it would classify and regulate carcinogens and then require the same general engineering controls and hygiene practices for all of them. The future of this new policy is somewhat in doubt, however: The American Petroleum Institute has asked the Fifth Circuit Court to review the carcinogen policy. 236

OSHA has also begun to use methods other than standards to protect workers. The agency has proposed a rule allowing workers access to medical records kept by companies, and the arsenic standard requires employers to give workers the results of company-financed medical exams.

The new lead standard is an example of a policy OSHA plans to continue in the future. The standard has a unique "rate retention" clause which requires employers to move workers from lead-contaminated areas if their blood lead levels exceed a certain concentration. Workers who are moved must retain their original pay rate. The injunction against certain portions of the lead standard did not affect the rate retention provision. 237

One of OSHA's most important moves was to back workers' rights to refuse extremely dangerous work. Before OSHA, workers did have limited
rights to refuse work that might cause death or serious injury. Section 502 of the 1935 Wagner Act, which regulates labor relations in the private sector, states that "Nor shall the quitting of labor by an employee or employees in good faith because of abnormally dangerous conditions for work . . . be deemed a strike." However, the U.S. Supreme Court ruled in 1974 that Section 502 protects a strike only when the employees can produce "objective evidence of imminent danger."238

During debate over the OSH Act, Congress rejected a provision that would have allowed workers to refuse unsafe work without loss of pay. The only relief for imminent danger situations in the final bill allowed an inspector to seek an injunction against a facility.239 In 1973, OSHA adopted a rule that an employee could refuse dangerous work, without pay, if he/she first tried to get the employer to do something about it. Later, a worker sued his employer on the basis of this rule after he was fired when he refused to return to work on a 150-foot steel skeleton because of high winds. The Fifth Circuit Court ruled that the Secretary of Labor exceeded his authority under the OSH Act by issuing the rule, and the U.S. Supreme Court denied review of the appeal.240

But in February, 1980, the Court reversed itself. The case involved two workers at a Whirlpool factory who refused to work on a steel mesh guard screen that caught appliance parts that fell from overhead conveyor belts. There had been a number of accidents on the screen, including a worker who fell to his death. A federal district court ruled against the workers, and the Labor Department appealed the case to the Sixth Circuit Court. The court reversed the lower court ruling, acknowledging the conflict with the previous decision.
Whirlpool appealed the decision to the U.S. Supreme Court which granted review because of conflicts in two other circuit courts on similar cases. The Court upheld OSHA's rule, even though the OSH Act does not specifically mention workers' right to refuse dangerous work. The decision cited Section 11(c)(1) of the Act which prohibits employers from discriminating against workers who exercise "any right afforded by the Act." Noting that the law was passed to prevent occupational injuries, illnesses and death, the Court ruled that the rule "conforms to the fundamental objective of the Act." However, workers citing the rule must prove that they had tried to get employers to correct the situation, and they cannot expect wages for the time they're off the job.

NIOSH also has initiated programs to take a more active role in preventing or ameliorating occupational disease. The agency initially limited its efforts to what might be called purely scientific activities—preparing lists of toxic chemicals, doing epidemiology studies and preparing the highly technical criteria documents. The agency's stance on pollution limits is more aggressive than OSHA's, but this is generally an in-house matter. The fact is, that although NIOSH studies workers and their health problems and has recommended numerous standards, engineering controls and hygiene practices to protect them, it has done little about the actual effects of exposure on workers, perhaps fearing charges of activism in what is considered a research agency.

In 1977, it was revealed that NIOSH had collected the names and addresses of 74,000 workers at risk of developing cancer because of exposure to asbestos, aniline dyes and other suspected carcinogens. The agency had not contacted the workers to tell them of their higher risk.
Obviously flustered by the disclosure, Dr. John Finlea, NIOSH director, said that the agency did not have the authority to release the names. But NIOSH's Office of Extramural Coordination and Special Projects expressed fear that if some of the workers subsequently developed cancer, the government could be sued.242

In response to this criticism, NIOSH is developing a unique notification/aid program to help workers exposed to carcinogens. Now in its pilot stage, the program is a joint effort between NIOSH and the Workers' Institute for Safety and Health, a Washington, D.C., research center largely supported by the AFL-CIO. The program was started to set up community self-help programs for exposed workers in response to what Paul Schulte, NIOSH's coordinator of the program, called "our biggest responsibility. We've got to start taking responsibility for the information that we have."

The program, which Schulte hopes will begin operating in 1981, begins with the identification of the individuals at risk. NIOSH first asks the companies and/or the union for a list of all workers who are working or have worked at the plant. Then, as Schulte put it, "we find out who's dead." If a worker is alive, NIOSH uses a number of methods to find his/her current address, including car registration records, social security and Internal Revenue Service records. The workers are then notified and given a local number or address to contact NIOSH.

But the program will go beyond simple information. "Something must be left in the community when we leave," Schulte said. NIOSH will try to form a community support program, with doctors, lawyers, psychologists, social service workers and others. Schulte said that although the
program is intended to help the workers immediately, it is also envisioned as a way to bring relief from other programs. Calling current workers' compensation systems "atrocities," he explained that community programs of this sort could eventually pressure legislatures to amend compensation requirements.

Schulte said the program's primary defect is the nature of some occupational diseases. The pilot program is geared toward workers exposed to aniline dyes. The dyes can cause bladder cancer which, if detected early, has a very good cure rate. However, lung cancer, the most common occupational cancer, has a very poor cure rate, even with early detection. Thus, Schulte said, even a program which emphasized early detection would do little to reduce the initial problem.243

So the focus returns to the workplace itself and the need to limit workers' exposure to toxic substances. If OSHA is forced to do in-depth cost/benefit analyses for each of its standards, the point may be moot--the agency essentially will be stripped of its authority to reduce exposure if it strongly suspects, but cannot currently prove, that a chemical may have long-term adverse effects. It seems clear that legislation is needed to more clearly define OSHA's powers and circumvent the effects of recent court decisions. The success of actions of this sort may well depend on the support of those the OSH Act was designed to protect—the workers themselves.

Workers and Workplace Regulation

The results of occupational health studies are now being used by some environmental groups. The Environmental Defense Fund and the Natural Resources Defense Council, for example, have asked the Consumer
Product Safety Commission to ban fireplace logs and other household products containing asbestos. The American Lung Association recently issued a series of pamphlets on respiratory problems associated with various workplace pollutants.

But the group most actively promoting better workplace conditions is organized labor. Many of the epidemiology studies which established connections between disease and workplace pollutants were done at the request of labor unions. Unions have been the most aggressive supporters of engineering controls rather than respirators. This is largely because respirators are uncomfortable, and some workers won't wear them unless pollutants irritate them, which is often not the case. Respirators are also difficult to breathe through (as this author learned after trying some on at the Billings area office), and they irritate skin in hot conditions when sweat builds up around the seal.

Since the OSH Act was passed, many unions have used its provisions allowing employee participation in workplace regulation to strengthen their rights to a healthful environment. By 1972, 35 of the 116 unions affiliated with the AFL-CIO had full-time safety and health directors. The primary issues in a 1974 OCAW strike was to gain access to medical and personnel records. Four thousand members of the unions went on strike demanding an independent scientific survey of health conditions, company-paid medical exams, and information about illness and death rates. After four-and-a-half months, the union gained access to sickness and death rates.

Unions have also begun to demand increasingly stringent provisions on workers' rights to a safe environment in their contracts. Both the
United Steelworkers and the OCAW contracts provide for a joint labor/management safety and health committee to meet on a regular basis. The OCAW contract says that the company must maintain an independent industrial health consultant, accepted by the union, to do industrial health surveys measuring workers' exposure and, if deemed necessary, conduct medical exams. The union is to receive copies of all such information. The contract also states that "No employee shall be required to perform services that seriously endanger his physical safety, and his refusal to do so shall not warrant or justify discharge or suspension." 248

The Steelworkers contract also specifies a joint committee to conduct monthly inspections and recommend any needed corrections. The company must inform the union about any new chemicals or processes and the hazards associated with them. The contract also stipulates a rate retention provision, forcing the company to pay an employee who must be moved to another job because of excessive exposure the same pay rate. 249

Although unions are in the forefront of efforts to improve workplace conditions, their efforts could be limited by one very important consideration: A safe and healthful workplace is meaningless if you're not working. It is significant that unions began lobbying heavily for safety and health improvements in the late 1960s and early '70s when economic conditions were good. However, as the country moved into a series of recessions in the middle '70s, with associated production cutbacks, some workers began to worry that requirements for pollution controls would force companies to cut back other areas of spending, i.e., jobs. During the OSHA hearings on the arsenic standard, for example, the national United Steelworkers office strongly supported a complete ban
on arsenic exposure. But the union's locals were hesitant. The local
in Tacoma, site of the ASARCO copper smelter which processes the highest
arsenic ore in the country, claimed the ban was an ideal, not a target.
As a union official stated in an interview:

We know we can't trade lives for jobs. We want the company
pushed far as possible to clean up this plant. But if they're
pushed long and hard enough, there's a definite possibility
that the place will close down, and we're talking about 600
union members.250

The union's fears are not groundless. In the steel industry alone,
U.S. Steel has announced that it is closing 15 plants in eight states,
representing a loss of 13,000 jobs, or 8% of the entire steel workforce.251

And there is some evidence that unions will back industrial develop­
ment despite obvious occupational hazards. At a February, 1979, meeting
of the AFL-CIO executive council, there was broad support for acceleration
of nuclear power plant construction. The council's resolution supported
increased construction, noting that construction and operation of
proposed plants would provide wages between $5 million and $10 million
annually. Only the machinists unions voted against the resolutuion. And
only the OCAW has expressed concern about the safety of power plant
workers: The union suggested that contracts allow workers to get their
original wages if a plant must be shut down or if workers must be
transferred because of excessive radiation exposure. 252

Despite continuing economic pressure, however, unions still are
pressing for good workplace safety and health requirements, although
their attitude is sometimes ambivalent when new jobs are at stake. This
is evident in a list of the Montana state AFL-CIO convention resolutions
on environmental issues between 1968 and 1979:
1968: Urged the state and federal governments to adopt legislation preventing air, land and water pollution.

1969: Opposed use of DDT and asked for legislation allowing workers to request U.S. Public Health Service medical exams.

1970: Condemned clear-cutting, but asked for more studies before additional areas were designated wilderness. Opposed a moratorium on timber sales in Rock Creek.

1971: Supported legislation to regulate industry to attain maximum employment with minimal environmental harm. This resolution also stated: "We cannot agree to allowing variances in this nor shall we permit them (industry) to frighten us with threats to 'pull out' or 'shut down' if they are forced to comply."

1973: Supported a publicly-owned utility system and state efforts to control sulfur dioxide pollution. Supported AFL-CIO executive board efforts to support the state's stiff strip-mining reclamation laws, stating that "these corporations, which have little interest in Montana except for the profits they can derive from exploitation of our resources and our people, have invariably opposed all effort to improve the social and economic well being of the people of Montana. The profit dollar is all-important to the exclusion of every other consideration." Opposed the proposed state plan to take over OSHA regulations and enforcement duties.

1974: Supported recycling legislation, rejecting the "contention that jobs must be sacrificed to preserve the environment." Supported a higher coal severance tax.
1975: Condemned the Montana Power Company's support for a state sales tax and for right-to-work laws. Endorsed the Colstrip Units 3 and 4 coal-fired power plants, but discouraged union collaboration with MPC. Supported recycling of all waste materials without taxes or deposits on non-disposable containers. Supported public utility districts. Supported utility rate structures favoring residential and small business consumers rather than large industrial consumers. Urged completion of Libby Dam.

1976: Supported legislation to increase the power output in the Pacific Northwest. Urged legislation requiring recycling of all waste. Supported railroad transportation of coal rather than slurry pipelines. Opposed giving the right of eminent domain to any private interests. Condemned the relocation of the only OSHA analysis laboratory from Utah to West Virginia. Urged increased OSHA enforcement efforts in Montana. Opposed an initiative limiting nuclear power plants in the state.

1977: Favored withholding wilderness status until "proper studies" are made. Supported public utility districts. Urged stronger OSHA enforcement. Urged stronger Mine Safety and Health Act enforcement. Favored the Northern Tier pipeline.

1978: Favored the Northern Tier Pipeline built under strict environmental controls. Supported the 30% coal severance tax and urged termination of leases with companies protesting the tax. Urged the U.S. Supreme Court to reconsider its decision
forcing OSHA inspectors to get search warrants. Favoring the Northern Tier pipeline over the Kitimat route. Urged completion of the RARE II studies. Opposed use of water in coal slurry pipelines.

1979: Favored development of alternative energy sources. Admonished big oil companies for creating shortages to justify price increases and urged the Montana Congressional delegation to force oil companies to open their books and find a means to control excessive corporate profits. Supported MHD. Asked Congress to break up the monopoly of big oil companies and exploration and distribution activities. Called for "just and reasonable" energy policies, preservation of jobs, safe energy and breaking up the power of the energy industry. Opposed lifting controls on domestic oil prices. Supported nationalization of oil companies. Urged support of the Northern Tier pipeline.

In the face of increasing economic pressures, unions also appear to be turning to measures that will protect both workers' health and their incomes. According to a press release by the United Steelworkers, Section 321 of the 1977 Clean Air Act Amendments allows workers to request an EPA investigation if their employer claims that pollution controls will cause job losses. EPA can subpoena company records to determine whether controls would force a company to curtail production or whether the company was planning to close down anyway. According to the press release, this clause has been used only once, but "as more people become aware of its existence, it can become a very effective tool
not only for clearing the air where job loss threats are claimed, but also for preventing groundless claims from being made."

Section 322 of the Amendments allows workers who believe they have been discriminated against because they support pollution control to also appeal. This provision is weak because although it would reinstate an employee unfairly penalized, it provides no punitive damages against the employer. Also, an employee who decides to use this provision faces an appeal process that could last up to three months: Upon receiving an appeal, the Labor Department must conduct an investigation within 30 days. Within 60 days after the investigation, the department must issue a formal decision on the matter.

The Amendments also contain provisions to help workers laid off because of "environmental shutdowns." After a one-year study of such cases by the Labor Department, the government theoretically can grant supplemental unemployment benefits, job re-training and relocation assistance. The law does not provide automatic assistance, but provides a basis for Congressional action.

In an interesting recognition of the use of economic threats, the Amendments specifically forbid non-ferrous smelters (copper, lead and zinc) which wish to use intermittent controls to lay off workers or reduce their hours. Intermittent controls mean that if a company realizes that it is violating air quality standards and it cannot yet use engineering controls, it will simply slow production to reduce emissions, often reducing work hours to do so. Under the law, a company may use this type of control, but must pay workers full production wages.
Another example of union support of measures to limit economic threats by industry is the Montana AFL-CIO sponsored plant closure initiative. Although the initiative did not get enough signatures to be placed on the November, 1980, ballot, there will probably be similar attempts in the future. The initiative would have required companies with more than 50 employees to give one-year advance notice of large layoffs and provide up to $25,000 in severance pay to laid-off workers. Other provisions included health insurance for up to six months after a closure and programs to provide other employment in the affected community.253

It also appears that industry intimidation attempts are not always effective when safety and health issues are involved. During consideration in the 1979 Montana legislative session of House Joint Resolution 26, which urged Congress to weaken the OSH Act and other industrial regulations because they impeded industrial development, workers constructing an acid plant at the East Helena lead smelter testified against the measure before the Senate Business and Industry Committee. Citing continuing lead problems at the smelter, one worker testified, "I've seen the benefits of OSHA. I've seen the day we washed parts with our hands using chemicals we had no business touching. Not now."254 The resolution, sponsored by an East Helena representative, passed the House 81-14. It was defeated in the Senate by a vote of 26-19.255

And in Butte, a town plagued by economic setbacks in recent years, 1,200 members of the Butte Miners' Union went out on strike in June, 1980, charging that the Anaconda Company did not adhere to mine safety standards and did not allow workers' representatives to accompany safety inspectors.
As the union president put it: "It's a matter of tic-tac-toe whether you come out of the mine alive."256

Thus, union support for workplace regulation appears to be strong despite economic constraints. The question now is, is this support enough to insure adequate workplace regulation and improved compensation systems?

Suggestions for Improvement

The Workers' Role

Although it can be assumed that unions will continue to support measures furthering workers' safety and health, employees' ability to lobby for such issues depends, to some extent, on whether they are unionized. Only 24% of the nation's workforce currently is unionized.257 However, because they are organized and wield a fair amount of political clout, unions could use a number of approaches to improve workplace conditions:*  

--- More stringent provisions in contracts for company-financed medical exams and worker access to medical and exposure records.

--- Standardized cross-union stipulations on safety and health issues. One example of this is union cooperation at the Anaconda smelter, where there are a number of unions who cooperatively negotiate on contract safety and health stipulations. Unions could band together in regional committees to share information and come up with safety and health issues important in similar industries.

--- Organize efforts to obtain government or company funds to train workers in safety and health issues so that they could recognize potential workplace problems.

*Most of the following suggestions are taken from Daniel Berman's Death on the Job.
Federal Regulation

It is, of course, difficult to separate issues that unions could initiate or support from improvements that could be made in regulating agencies. However, most of the following suggestions would require either legislation or agency promulgation, so can be separated from possible union actions:

---Legislation to strengthen the enforcement and standard-setting power weakened by recent court decisions. As discussed, federal and state ambient air quality standards assume that human health must be protected regardless of economic cost. The OSH Act should be amended to allow workers' health the same consideration.

---More use of information generated by federal evaluations of possible workplace hazards. OSHA should make better use of NIOSH health hazard evaluation data to decide which industries should be inspected. Not only would this policy identify particularly hazardous industries, it would help eliminate the "nit-picking" inspections that have garnered so much industry criticism.

---An expansion of OSHA's recent attempts to categorize and regulate workplace pollutants generically. Industry so far has challenged every health standard OSHA has promulgated. Although "generic standards" would undoubtedly also be challenged, the issues could be settled in one court case rather than spread through various circuit courts.

---More stipulations such as the rate retention clause in the lead standard. Provisions of this sort would force industries that were slow to install needed engineering controls to more dangerously exposed workers without endangering their livelihood.

---An expansion of programs such as NIOSH's pilot effort to identify and help workers exposed to carcinogens. Not only would this aid the workers at risk, it would educate the affected communities about the issues involved and encourage them to seek changes in both workplace regulation and compensation laws.

---An investigation by OSHA or by an "objective" agency such as the General Accounting Office of the relationship between needed pollution controls and production efficiency. Many of the more hazardous industries are older facilities where a complete overhaul of their processes would both lessen workplace pollutants and increase production capacity.
Of all worker health issues, compensation deficiencies have received the least amount of attention. Research is desperately needed on the different state compensation systems, how well they compensate occupational diseases and what kind of legislation is needed to correct existing problems. There is some evidence that court action may encourage some legislative reform. As explained in the first chapter, the compensation concept largely replaced negligence suits for work-related injuries and deaths. But workers who do not receive compensation and believe that their injury or illness was a result of workplace conditions can, theoretically at least, sue for damages.

In 1974, for example, the U.S. Supreme Court upheld a jury award of $79,000 to the widow of an insulation worker who died of lung cancer after years of asbestos exposure. The Court ruled that an industry using materials known to be hazardous had special obligations beyond meeting existing safety standards.

Although successful suits of this sort against industry appear to be few, there is now a trend to hold government responsible because it is supposed to insure workplace safety under OSHA and other statutes. The general rule has been that sovereign immunity protects the government from most class action suits. But broader interpretations of the 1959 Federal Tort Claims Act allow suits based on general tort liability—personal or property damage caused by federal employees—after the particular agency has a chance to settle administratively.

In December, 1977, the Justice Department agreed to pay $5.7 million to 400 former asbestos fabricators. The workers claimed that the Public
Health Service kept secret the results of several factory inspections and medical exams it conducted in the 1960s, thereby increasing the workers' likelihood of developing lung cancer or asbestosis. The inspections were done before OSHA and the government refused to admit liability. But the payment itself may mark a precedent for future cases.

In 1979, a veteran suffering from cancer of the lymph system was granted veterans' benefits. He based his case on the fact that he was exposed to radiation during aboveground nuclear bomb testing in the 1950s. The Board of Veterans' Appeals, which granted the award, is not bound by precedent or subject to judicial review. However, its ruling would seem a de facto acknowledgment and may mark possible benefits for several hundred veterans who have filed similar appeals.

Several veterans exposed to Agent Orange, a defoliant used during the Vietnam War, have filed suit against the Dow Chemical Company and several other herbicide manufacturers alleging a number of ailments, particularly nerve disorders.

These and similar suits probable in the future as the results of present exposure to various chemicals may well prompt legislation to amend compensation statutes. Already one bill has been introduced in the U.S. Senate which would force chemical companies and other hazardous industries to set up a special fund to pay victims' medical bills.

Because of the large awards in successful negligence suits, similar court actions may force states to amend their compensation suits to specify occupational diseases. And it is not unlikely that the same fear of large awards will convince industry to support these changes, in an interesting repeat of corporate support of compensation systems in the early 1900s.
ENDNOTES


10. Ibid., p. 23.

11. Millus and Gentile, op. cit., p. 16.

12. Ibid., p. 18.

13. Ibid., p. 19.


15. Somers and Somers, op. cit., p. 32.

16. Ibid.

17. Ibid., p. 33.

18. Ibid., p. 34.


21. Ibid., p. 20.


23. Ibid., p. 18.

24. Ibid., p. 61.


29. Scott, op. cit., p. 179.


31. Ibid., p. 158.


36. Ibid., p. 83.


38. Ibid.


44. Scott, op. cit., p. 193.


47. In These Times, op. cit., p. 17.

48. Industrial Union Department, AFL-CIO, op. cit., p. 52.


50. Berman, op. cit., p. 56.

51. Brodeur, op. cit., p. 20.

52. Berman, op. cit., p. 58.


55. Scott, op. cit., p. 84.


59. Berman, op. cit., p. 32.


61. Berman, op. cit., p. 32.


63. Ibid.

64. Ibid., p. 17.
65. Ibid.

66. Unless otherwise noted, the synopsis of the OSH Act's legislative history is from the Bureau of National Affairs analysis.


68. The 1970 Occupational Safety and Health Act (hereinafter The OSH Act), Section 2(b).

69. Ibid., Section 6(b)(5).

70. Ibid.

71. Ibid., Section 20(a)(6).

72. Ibid., Section 20(b).

73. Ibid., Section 8(f)(1)(2).

74. Ibid., Section 8(e).

75. Ibid., Section 17(a)-(e).


77. The OSH Act, Section 13(b).


80. The OSH Act, Section 12(a)(b).


82. The OSH Act, Section 18(c)(1)-(8).

83. Ibid., Section 23(a)(2).

84. Ibid., Section 23(f)(g).

85. Ibid., Section 24(a).

86. Ibid., Section 24(b)(2).
87. Ibid., Section 8(c)(2).
88. Ibid., Section 8(c)(3).
89. Ibid., Section 6(b)(7).
90. Ibid., Section 17(h)(2)(ii).
92. Ibid., p. 13.
94. Scott, op. cit., pp. 210-211.
95. The OSH Act, Section 6(f).
96. Smith, op. cit., p. 10.
100. INFORM, Inc., op. cit., Volume 1, p. 223.
101. The OSH Act, Section 6(c)(1).
104. American Conference of Governmental Industrial Hygienists. TLVs--Threshold Limit Values for Physical Agents, Adopted by ACGIH in 1979.


111. Ibid. at 477.

112. Ibid. at 478.


118. Ibid. at 503.

119. Ibid. at 505.


121. Ibid. at 5028.

122. Ibid. at 5049.


133. Public Law 95-95, Section 109(b)(1).


144. Scott, op. cit., p. 287.


146. Brodeur, op. cit., p. 115.


150. Ibid., p. 10.

151. Ibid., p. 13.


156. Ibid., p. 15.


158. Harry Hutton, Director, OSHA area office, Billings, Montana. Personal communication, March 18, 1980.


163. Ibid., p. 40.

164. Workplace Inspection Program Weak in Detecting and Correcting Serious Hazards, May 19, 1978, op. cit., p. 5.


168. The OSH Act, Section 6(b)(6)(A).

169. Workplace Inspection Program Weak in Detecting and Correcting Serious Hazards, May 19, 1978, op. cit., p. 28.

170. INFORM, Inc., op. cit., Volume 2, p. 3.


175. Dr. William Johnson, University of Washington Medical School. Personal communication, July 1, 1980.


177. INFORM, Inc., op. cit., Volume 1, p. 75.

178. Ibid., Volume 2, p. 6.

179. Ibid., Volume 2, p. 4.

180. Ibid., Volume 1, p. 251.

181. Ibid., Volume 2, p. 38.

182. Ibid., Volume 1, p. 246.

183. Susan Schermerhorn, op. cit.


185. Ibid., p. 24
186. Ibid., p. 33.
187. Ibid., Volume 1, p. 17.
188. Ibid., Volume 2, p. 54.
189. Ibid., Volume 1, p. 23.
190. Ibid., Volume 2, p. 44.
193. Ibid., p. 44.
195. Epstein, op. cit., p. 94.
205. Ibid., p. 2.

208. Berman, op. cit., p. 41.


217. Millus and Gentile, op. cit., p. 140.


221. U.S. Department of Labor, 1979, op. cit., p. 68.

222. Ibid., p. 3.

223. Ibid.


227. Berman, op. cit., p. 27.


229. A copy of both the National Commission's recommendations and the proposed federal compensation law are contained in Appendix A of Workplace Safety and Health by John Robert Chelius, published by the American Enterprise Institute for Public Policy Research in 1977.


231. Berman, op. cit., p. 68.


235. Harry Hutton, op. cit.


237. Schermerhorn, op. cit.


244. Epstein, op. cit., p. 375.


247. Ibid., p. 122.


260. Ibid.

