

## DOCUMENT RESUME

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**Sporadic Workplace Inspections for Lethal and Other Serious Health Hazards.** HED-77-143; B-163375. April 5, 1978. 49 pp. + 6 appendices (20 pp.).

**Report to the Congress; by Elmer B. Staats, Comptroller General.**

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The Occupational Safety and Health Act of 1970 was designed to assure, as far as possible, safe and healthful working conditions for every worker in the Nation. A review was conducted to determine how well the Department of Labor's Occupational Safety and Health Administration (OSHA) is managing industrial hygienists' efforts to deal with cancer-causing chemicals and other health hazards in industrial settings. **Findings/Conclusions:** Thousands of workplaces have not yet been inspected by Federal or State industrial hygienists for health hazards. Of those that have been inspected, only 26% were where one or more carcinogens, suspected carcinogens, or other substances posing high risks were detected. Aggressive action is needed to require OSHA and the States to inspect workplaces with high-risk health hazards. Without a plan that considers what can be done to enforce standards on high-risk health hazards, OSHA management has little control over health hygienists. OSHA's ability to emphasize certain high-risk substances may be significantly hindered by the lack of qualified personnel, problems with equipment, sampling procedures, and laboratory analysis methods. Industrial hygienists' inspections frequently have not provided convincing evidence that employers provided the protection required. **Recommendations:** The Secretary of Labor should direct OSHA to establish a basic health standards enforcement plan that considers: the relative severity of the health risks posed by toxic substances and other health hazards covered by the standards; the number and location of workplaces likely to have such hazards and the number of workers exposed to them; the ability of OSHA and States to make inspections with qualified personnel, reliable equipment, and proper procedures; and the degree of employers' compliance with the standards. Industrial hygienists should be required to: identify and record all high-risk substances at each workplace inspected, check for and document whether employers are in compliance with each

requirement in the standards, record how the employer is complying with the standards for each high-risk substance, and perform followup inspections at all workplaces which violate the standards covering carcinogens and other suspect high-risk hazards. (RRS)

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BY THE COMPTROLLER GENERAL

# Report To The Congress

OF THE UNITED STATES

## Sporadic Workplace Inspections For Lethal And Other Serious Health Hazards

Millions of workers may be exposed to cancer-causing and other dangerous substances. Inspections for such substances are inadequate and sporadic.

The Department of Labor's Occupational Safety and Health Administration should require Federal and State industrial hygienists to direct their efforts to the most hazardous workplaces and make more thorough inspections for occupational health hazards.

GAO recommends several ways in which Labor and States can improve their inspection programs so they can find and deal more effectively with these hazards.



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COMPTROLLER GENERAL OF THE UNITED STATES  
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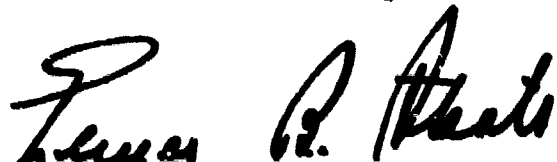
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To the President of the Senate and the  
Speaker of the House of Representatives

This report discusses the need for the Occupational Safety and Health Administration to do a better job directing Federal and State industrial hygienists' inspections to find and deal with occupational health hazards.

We made our review because of congressional and public interest in assuring that workers are adequately protected from cancer-causing chemicals and other health hazards that can cause death or irreversible harm to health. We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

Copies of this report are being sent to the Director, Office of Management and Budget, and the Secretary of Labor.

  
Comptroller General  
of the United States

D I G E S T

The Department of Health, Education, and Welfare's (HEW's) National Institute for Occupational Safety and Health estimates that millions of Americans are exposed to known carcinogens (cancer-causing agents) in their workplaces. It estimates that even more people are exposed to other chemicals and substances which, although noncarcinogenic, can cause fatal or irreversible damage to vital organs or the nervous system.

The Department of Labor's Occupational Safety and Health Administration is responsible for issuing and enforcing standards to protect workers from such health hazards. States are authorized to enforce standards if their methods of enforcement and their standards are or will be as effective as Labor's.

More effort will be made to enforce health standards. This will require hiring and training hundreds of additional industrial hygienists, but unless corrective actions are taken, their inappropriate use may continue.

FEW INSPECTIONS FOR HIGH-RISK  
HEALTH HAZARDS

Thousands of workplaces have not yet been inspected by Federal or State industrial hygienists for health hazards. Of those that were inspected, only 26 percent were where one or more carcinogens, suspected carcinogens, or other substances posing high risks were detected. For more than half the health inspections, inspectors (1) did not find any health hazards, (2) found only health hazards that Labor considered to be low-risk, or (3) found health hazards which Labor has not ranked as to the degree of risk. (See p.6.)

## BASIC PLANNING AND FIRM LEADERSHIP NEEDED

Labor needs to establish a basic inspection plan so it can determine which hazards take priority and direct inspections accordingly. (See p. 13.)

Inspections may be hindered by problems with equipment, sampling procedures, and laboratory analysis methods. Such problems cannot be dealt with until they are clearly defined and approaches to solving them are developed. (See pp. 14, 15, and 16.)

Legal requirements mandating a prompt response to employee complaints may also hinder inspections. The law should be amended to allow less serious complaints to be resolved without having to use limited inspection resources. Also, Labor should revise its policy of inspecting workplaces when employees complain informally about nonserious hazards. (See p. 17.)

## INADEQUATE INSPECTIONS

GAO's review of inspection files and visits to workplaces raised questions as to whether workers can rely on inspections to tell them whether or not they are adequately protected from high-risk toxic substances. Frequently, inspections records did not give complete information on high-risk toxic substances in workplaces, if and how the inspector checked for compliance with the standards on such substances, and if and how the employer was in compliance. Because inspectors are not required to record answers to these questions, there is inadequate control over the quality and completeness of the inspections. (See p. 31.)

If health inspections are to be relied upon to improve conditions at workplaces using carcinogens and other high-risk substances, Labor must provide clear guidance and require Federal and State inspectors to

--identify and evaluate all high-risk substances at each inspected workplace;

--enforce the applicable standards or, if no standards exist, enforce the general duty clause or take such actions as consulting with employers and employees to help improve protection from substances that can cause death or irreversible harm; and

--make followup inspections to see that employers protect their workers from high-risk substances. (See p. 42.)

#### MORE MEANINGFUL EVALUATION NEEDED

Labor does not know to what extent Federal and State inspections have addressed and eliminated high-risk health hazards. Adequate data have not been accumulated for evaluating the effectiveness of past inspection efforts in dealing with such high-risk hazards. Without such information, Labor is unable to adequately evaluate its efforts to protect workers. (See p. 46.)

Labor needs to modify its information system to include data on worker exposure to high-risk health hazards in each State and the number of employees protected from exposure to such hazards identified during inspections. (See p. 47.)

#### RECOMMENDATIONS

GAO recommends a number of actions Labor and States should take to improve the planning, conduct, and evaluation of their inspection programs so that they can better find and deal with potential cancer-causing and other dangerous substances in workplaces. (See pp. 25, 42, and 48.)

GAO also recommends that the Congress amend section 8(f) of the Occupational Safety and Health Act of 1970 to provide the Occupational Safety and Health Administration authority to resolve complaints without inspecting the workplaces when the complaints do not involve potential hazards that can cause death or serious physical harm. (See p. 26.)

## AGENCY COMMENTS

Labor agreed with GAO's findings and recommendations and said that the Occupational Safety and Health Administration had either taken or planned to take actions to better direct inspections to workplaces with high-risk health hazards, improve the quality and completeness of health inspections, and improve its data collection and program evaluation efforts.

Labor's proposed actions, if properly implemented, should result in program improvements. However, Labor needs to refine and clarify some of its recent and planned actions to insure that its health enforcement efforts and those of States operating under approved plans will effectively deal with serious health hazards in the workplace. (See pp. 27, 43, and 49.)



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### ABBREVIATIONS

GAO	General Accounting Office
OSHA	Occupational Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health

## CHAPTER 1

### INTRODUCTION

The Congress passed the Occupational Safety and Health Act of 1970 (29 U.S.C. 651) to assure, so far as possible, safe and healthful working conditions for every worker in the Nation. The act authorizes the Secretary of Labor to develop and enforce safety and health standards. Occupational safety standards are to prevent injuries from mechanical, electrical, and other physical hazards. Occupational health standards are to prevent illnesses from exposure to toxic chemicals and other dangerous substances and agents. Safety compliance inspections are made by safety specialists; health inspections are made by industrial hygienists.

Labor's efforts to enforce standards at workplaces were predominately in the safety area during the first 5 years' operations under the act.

Labor has said that more effort will be made to enforce health standards. According to Labor, this will require hiring and training hundreds of industrial hygienists.

An industrial hygienist is a specialist trained to anticipate, detect, evaluate, and monitor industrial operations potentially injurious to health. Occupational Safety and Health Administration (OSHA) industrial hygienists must have a bachelor's degree in the physical or natural sciences, or a related field. To inspect workplaces, industrial hygienists must be able to evaluate airborne contaminants and toxic chemicals using special sampling equipment. They must know the requirements of OSHA's standards and must be familiar with the various protective measures available for protecting workers. OSHA's newly hired industrial hygienists participate in a formal 3-year training program and receive on-the-job training. Safety specialists are not required to have specialized education or experience; about half have bachelors degrees.

We made this review to see how well the Department was managing present industrial hygienists' efforts to deal with cancer-causing chemicals and other health hazards that can cause death or irreversible harm to health. Other reports we have issued that cover the same or related subjects are listed in appendix V.

## FEDERAL AND STATE ENFORCEMENT AUTHORITY

The Secretary of Labor delegated responsibility for the 1970 act to OSHA. To enforce safety and health standards, the act authorizes OSHA to inspect workplaces, assess penalties for violations, and require correction of violations.

The act provides that any State may enforce safety and health standards if OSHA determines that the State's standards and enforcement are or will be at least as effective as OSHA's. As of October 1, 1977, OSHA had approved enforcement plans for 25 States. Such approval gives the State authority to inspect workplaces to enforce standards, with Federal grants for up to 50 percent of the cost. In States with approved plans, OSHA either has or plans to let States assume full responsibility for safety and health enforcement. The act authorizes OSHA to withdraw approval of a State's program if the State fails to meet Federal requirements.

## WORKER HEALTH HAZARDS AND STANDARDS

In 1976 the National Institute for Occupational Safety and Health (NIOSH), Department of Health, Education, and Welfare, published a list of about 22,000 toxic chemicals. NIOSH has identified about 1,900 chemicals as suspected carcinogens (cancer-causing agents).

NIOSH estimates that several million Americans are exposed to known carcinogens in their workplaces and that millions more are exposed to other chemicals and substances which, although noncarcinogenic, can cause fatal or irreversible damage to vital organs such as the lungs, liver, or heart, or to the nervous system.

The 1970 act authorized OSHA to adopt standards that had been established under other Federal laws or by certain consensus groups. In May 1971 OSHA adopted such standards covering thousands of safety hazards and about 400 toxic substances or groups of substances.

Health standards may limit the fumes, dust, or particulates from a substance that can be in the air and/or require protective clothing, warning labels, various other work practices, employee information, and employee medical surveillance.

The standards for the approximately 400 toxic substances consisted solely of exposure limits, referred to as "threshold limit values." These values were developed on the assumption that there is some safe level of exposure to the substance. However, some of the substances covered by threshold limit values cause cancer.

An April 1970 report to the Surgeon General by the Ad Hoc Committee on the Evaluation of Low Levels of Environmental Chemical Carcinogens stated that:

"Any substance which is shown conclusively to cause tumors in animals should be considered carcinogenic and therefore a potential cancer hazard for man... (and) no level of exposure to a chemical carcinogen should be considered toxicologically insignificant for man. For carcinogenic agents 'a safe level for man' cannot be established by application of our present knowledge."

This means that the threshold limit values for carcinogens do not fully protect workers' health.

OSHA has determined that most of these standards consisting solely of exposure limits need to be revised to update the exposure limits or add work practices, medical surveillance, and other measures. Although the exposure limits in many of these standards may not be low enough to fully protect workers' health, an OSHA official said that OSHA has determined that compliance with the standards can reduce the health risk.

The act provides that OSHA can establish, revise, or revoke occupational safety and health standards. In addition to adopting the estimated 400 exposure limits, OSHA had issued new or revised standards on 16 substances and coke-oven emissions as of December 1977. These standards require employers to limit employee exposure and provide various protective measures and employee medical surveillance.

Thousands of health hazards are not yet covered by OSHA standards. However, the act contains a "general-duty" clause which requires employers to keep workplaces free from recognized hazards that are causing or are

likely to cause death or serious physical harm. The act also requires that OSHA consult with and advise employers and employees on effective means of preventing occupational injuries and illnesses.

### OSHA AND STATE INSPECTION EFFORTS

From the beginning of the program through September 30, 1977, OSHA allocated about \$251 million for Federal enforcement of safety and health standards, and provided \$153 million in grants to States for enforcement of standards under OSHA-approved State plans. For fiscal year 1978 OSHA budgeted about \$63 million for Federal inspections and enforcement, and about \$34 million for such activities by States.

OSHA and State workplace inspection statistics are shown below.

	<u>Number of inspections</u>	<u>Violations cited</u>
OSHA (1971 - 9/30/76)	433,698	1,312,360
States (7/1/74 - 9/30/76) (note a)	559,198	1,229,786

a/OSHA does not have data for State inspections prior to July 1974.

OSHA records do not readily show how many of these inspections prior to fiscal year 1976 were health inspections and how many were safety inspections. Data available for fiscal year 1976 showed that OSHA and the States conducted about 247,000 inspections; of these, 12 percent were health and 88 percent were safety. About 98 percent of the violations cited as a result of these inspections were determined to be not of a serious nature by OSHA and the States.

As of October 1, 1977, OSHA had 484 industrial hygienists and the States had 249. OSHA had 951 safety specialists and the States had 805. Because of the importance of improving occupational health conditions, OSHA planned to hire and train about 450 additional industrial hygienists.

## SCOPE OF REVIEW

We made our review at OSHA headquarters in Washington, D.C.; OSHA's regional offices in Boston, Massachusetts; Chicago, Illinois; and Seattle, Washington; and State offices in Minnesota, Oregon, Vermont, and Washington. Our review covered the operations in seven States. OSHA is responsible for performing the inspections in Idaho, Illinois, and Massachusetts. States operating under OSHA-approved plans are responsible for inspections in Minnesota, Oregon, Vermont, and Washington.

Our review included discussions with OSHA and State officials responsible for administering the occupational health programs and examination of laws, regulations, procedures, and records relating to Federal and State health enforcement activities. We reviewed inspection files and related records for about 45 percent of the 5,070 health inspections performed in the 7 States during fiscal year 1976. We also accompanied OSHA and State inspectors during their inspections of 19 selected workplaces.

## CHAPTER 2

### FEW INSPECTIONS DIRECTED AT

### HIGH-RISK HEALTH HAZARDS

The Occupational Safety and Health Administration has determined that the two highest risk categories of toxic substances regulated by OSHA standards are (1) 16 substances regulated as carcinogens and (2) 172 substances that either are suspected carcinogens or pose high risks because of their cumulative effects on exposed workers.<sup>1/</sup> Of the 2,271 health inspections we reviewed, high-risk substances were mentioned in the files in only 26 percent of the inspections. Of the 16 substances regulated as carcinogens, 12 were not mentioned in any of the 2,271 inspections files; of the 172 substances in the next highest risk category, 116 substances (including 22 suspected carcinogens) were not mentioned.

The files also indicated that for more than half the 2,271 health inspections, the inspector (1) did not identify a suspected health hazard, (2) identified only health hazards OSHA considered to be low-risk, or (3) identified health hazards which OSHA has not ranked as to the degree of risk.

OSHA and most State officials said they did not know the number of workplaces that are likely to have the 16 carcinogens or other high-risk substances. Nor did they know how many such workplaces had been inspected by industrial hygienists prior to the period covered in our fiscal year 1976 case-file review. We obtained information from OSHA, the National Institute for Occupational Safety and Health, and the States indicating that there are many workplaces in the seven States we reviewed and thousands of workplaces nationwide which are likely to have the high-risk substances but have not been inspected by OSHA or State industrial hygienists.

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<sup>1/</sup>These totals include some chemical groups, such as fluorides, that were treated as individual items. Not included in the 16 carcinogens are substances covered by a standard for coke oven emissions issued October 22, 1976, which, when combined in the environment, are considered to pose a risk of cancer to exposed workers.



## HIGH-RISK HEALTH HAZARDS

In December 1976 OSHA issued a list which ranked, in order of the degree of risk posed to workers' health, the toxic substances covered by OSHA standards. The list was to help industrial hygienists decide whether violations of the standards should be called serious or nonserious in assessing penalties.<sup>1/</sup> For the most part, substances which are carcinogens, suspected carcinogens, or which cause chronic illness (categories I and II) are to be cited as serious violations if workers are exposed to levels in excess of that permitted by the standard. These eight categories of substances are listed in descending order of risk.

- I. 16 carcinogens.
- II. 44 suspected carcinogens and 128 substances that cause other chronic illnesses.
- III. 40 substances that cause acute systemic toxicity.
- IV. 79 substances that result in nervous system disturbances.
- V. 37 substances that cause respiratory effects other than irritation.
- VI. 9 substances that cause blood disturbances.
- VII. 139 irritants of the eyes, nose, throat, lungs, and skin.
- VIII. 66 low-risk substances.

Although the listing is a good first attempt to rank the degree of risk posed by toxic substances, it can be improved. For instance, certain substances which are listed in categories other than "carcinogens" are known to cause cancer. Also, carbon monoxide, which can cause death, is ranked as a low-risk substance. OSHA will have to continually update the list as new information becomes available from scientific studies.

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<sup>1/</sup>Under the act, a penalty of up to \$1,000 is mandatory for a serious violation and discretionary for a nonserious violation. The act defines a serious violation as one which probably would result in death or serious physical harm and which the employer knew or should have known was present.

The OSHA list did not include health hazards posed by such harmful physical agents as noise, extreme temperatures, and radiation. An OSHA official said OSHA had not determined the relative severity of the risks posed by these hazards as compared to those included on the list.

### HEALTH HAZARDS AT WORKPLACES INSPECTED

During fiscal year 1976, 11,689 inspections were made by OSHA health inspectors and 17,553 were made by State health inspectors. About 25,000 health violations were cited as a result of these inspections. Less than 5 percent of these violations were cited as serious.

We analyzed 2,271 OSHA and State inspection records to determine how many of the inspections were at workplaces that had the high-risk substances. If the record showed that a workplace had more than one substance, we categorized it according to the substance with the highest risk. The results analysis are presented in the table, on page 9.

As shown in the table, only 595, or about 26 percent, of the 2,271 inspections files we reviewed mentioned carcinogens, suspected carcinogens, or substances that can cause chronic illness. More than 50 percent of the files identified no health hazards, lowest risk health hazards, or hazards which OSHA has not ranked in terms of the relative degree of risk involved. The unranked hazards, which accounted for 43.3 percent of the inspections, included noise, dirty restrooms, poor lighting, hot or cold work areas, and unspecified fumes or dust. Although we are not advocating that such hazards be ignored, we question whether such a significant amount of effort should be applied on them as opposed to the effort expended on carcinogens and other high-risk substances.

Of the 16 carcinogens, 12 were not shown in the records as being present at any of the workplaces covered in the 2,271 inspections. Of the 44 suspected carcinogens, 22 were not shown for any of these workplaces. Of the 128 other substances in the second highest risk category, 94 were not shown for any of the 2,271 workplaces. The 12 carcinogens, 22 suspected carcinogens, and 94 other substances not identified in any of the inspections are listed in appendix I.

When high-risk substances were found, they were found infrequently. Where several substances were identified in the inspection file, we counted each one. The substances and

Highest-risk Health Hazard Identified  
During Inspections Reviewed by GAO

Health effect category:	Idaho	Illinois	Massachusetts	Minnesota	Oregon	Vermont	Washington	Total	Percent
I. Carcinogens	3	35	38	18	6	33	25	158	7.0
II. Suspect carcinogens	15	78	42	40	32	11	31	249	11.0
Other chronic illnesses	8	34	53	37	23	10	23	188	8.3
III. Acute systemic effects	2	9	11	24	9	-	18	73	3.2
IV. Nervous system disturbances	15	16	38	44	19	20	44	196	8.6
V. Respiratory effects	1	16	18	38	15	27	20	135	5.9
VI. Blood disorders	-	-	-	-	-	-	-	-	-
VII. Irritants	9	13	14	14	17	4	15	86	3.8
VIII. Low-risk health substances	7	22	27	55	34	22	36	203	8.9
Other (note a)	<u>81</u>	<u>46</u>	<u>382</u>	<u>94</u>	<u>159</u>	<u>77</u>	<u>144</u>	<u>983</u>	<u>43.3</u>
Total	<u>141</u>	<u>269</u>	<u>623</u>	<u>364</u>	<u>314</u>	<u>204</u>	<u>356</u>	<u>2,271</u>	<u>100.0</u>

a/ This category includes inspections where the health hazards were not in the OSHA toxicity listing or no toxic substance or other health hazard was identified by the inspector.

the frequency with which they were found in the seven States are summarized in appendix II.

In selecting the 2,271 inspections we reviewed, we excluded 155 inspections of migrant labor camps in Oregon, 353 restaurant and tavern inspections in Washington, and 1,165 "radiation" inspections in Washington, because such inspections were limited in scope and would not have involved substances categorized by OSHA. Migrant labor camp inspections in Oregon usually covered such conditions as uncovered garbage cans, lack of toilet paper holders or dispensers, lack of screens on doors and windows, and tall grass or weeds near sleeping quarters. State officials in Washington said that the restaurant and tavern inspections usually covered noise and possible leakage from microwave ovens, and that they were made by a technician rather than by an industrial hygienist. They said that the radiation inspectors spent most of their time verifying that X-ray machines and other radiation-emitting equipment were properly licensed and registered. The total number of inspections by the two States in these three categories (1,673) was more than 10 times the 158 inspections in all seven States at workplaces found to be using carcinogens (see p. 9).

#### WORKPLACES WITH HIGH-RISK SUBSTANCES NOT INSPECTED

We could not determine either at the national or State level, the number of workplaces with carcinogens or other high-risk substances that had not been inspected for such hazards. Available data indicate however, that there are thousands of workplaces employing millions of workers who may be exposed to such hazards.

- OSHA and State hygienists have inspected less than 1 percent of the Nation's estimated 5 million workplaces. <sup>1/</sup> Many of these inspections did not cover all health hazards in the workplaces.
- NIOSH, which has done surveys of workers exposed to substances, estimates that several million workers are exposed to known carcinogens.

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<sup>1/</sup>Based on OSHA data. OSHA does not know what percentage of the Nation's workers were in these workplaces.

--From January 1973 through June 30, 1976, OSHA industrial hygienists had taken inorganic lead samples during 1,111 inspections affecting about 15,000 employees. NIOSH estimates that 1.4 million employees are exposed to inorganic lead. During the same period, OSHA hygienists sampled for benzene during 157 inspections and for vinyl chloride during 880 inspections. The benzene inspections affected about 2,400 workers and the vinyl chloride inspections affected about 27,000. NIOSH estimates that 1.9 million employees are exposed to benzene and 2.2 million are exposed to vinyl chloride.

State data showed that many workplaces with carcinogens and other high-risk substances have not been inspected by industrial hygienists.

--In September 1976 OSHA gave the State of Washington a list of 23 employers who it said use inorganic lead and 68 who it said use mercury. The State had not inspected 12 of the employers using inorganic lead and 57 of those using mercury. A State official said the list was of little value because when it mailed information to these firms, many reported that they did not use these materials and others were either out of business or said they were no longer using the materials. Consequently, inspections were not made.

--Since the enactment of the OSHA act, the State of Washington had not inspected four large aluminum plants that may have asbestos, vinyl chloride, coal tar pitch volatiles, benzene, cadmium, mercury, fluorides, ozone, hydrogen fluoride, and phenol.

--In Minnesota, four workplaces using MOCA, a known carcinogen, had not been inspected as of February 1977.

--OSHA officials in Illinois said they thought there were some employers using carcinogens in the State, but none had registered, and they had not tried any other means of identifying employers using carcinogens.

--Oregon State officials estimated that health inspections during the last 4 years had covered only about 13 percent of the workers exposed to the 16 carcinogens, arsenic, and benzene.

## CONCLUSION

The Secretary of Labor needs to take prompt, aggressive actions to require OSHA and the States to inspect workplaces with high-risk health hazards. Specific actions that are needed to resolve these problems are discussed in the remainder of the report.

## CHAPTER 3

### BASIC PLANNING AND DIRECTION NEEDED

The Occupational Safety and Health Administration headquarters has not put together a basic plan for directing health inspection resources to emphasize carcinogens, suspected carcinogens, and other high-risk substances. It has permitted OSHA field offices and States to conduct their programs largely without a basic strategy for finding and dealing with high-risk health hazards.

#### BASIC PLAN NOT DEVELOPED

In our opinion, OSHA needs a basic plan that considers:

- The gravity of the health risks posed by the various toxic substances and other health hazards covered by the standards.
- The number and location of workplaces that are likely to have such hazards and the number of workers potentially exposed to them.
- The ability of OSHA field offices and States to make inspections with qualified personnel, reliable equipment, and proper procedures and methods for sampling and analyzing the substances.
- The degree of employers' compliance with the standards, as indicated by past inspections or other sources.

Although the OSHA headquarters office has some information on these issues, it has not put such information into an overall plan for directing OSHA and State health inspection efforts.

#### Gravity of health hazards

As discussed in chapter 2, the OSHA headquarters office has ranked virtually all of the toxic substances covered by standards. The ranking was based on the relative severity of the substances' effects on exposed workers. This ranking, however, was to help decide whether violations of standards should be called serious or nonserious. This ranking, or any similar ranking, has not been used to help decide which hazards should be emphasized and which workplaces should be inspected.

## Lack of data on number of workplaces and exposed workers

OSHA does not have complete data or estimates on the numbers of workplaces and workers exposed to carcinogens, suspected carcinogens, and other health hazards covered by OSHA standards. OSHA has data on some substances, but does not have adequate data on many substances. For example, OSHA identified manufacturers of polyvinyl chloride and manufacturers and users of lead, mercury, and silica, and substances common to foundries. However, it has not identified manufacturers and users of most carcinogens and suspected carcinogens.

The OSHA standards on 15 carcinogens require employers using such substances to report to OSHA area offices, their locations and the number of employees with potential exposure. OSHA headquarters officials said they had not accumulated such reports at the headquarters office and did not know how many employers had reported.

The National Institute for Occupational Safety and Health has been accumulating data and estimates for several years on the number of employers who use hazardous substances and the number of workers exposed to such hazards. NIOSH plans to issue a report on the results of a survey of nearly 5,000 workplaces. The report will contain projections of the number of workers exposed to some substances covered by OSHA standards. For example, preliminary estimates are that about 2 million employees are exposed to each of the following substances: benzene, asphalt, carbon tetrachloride, and vinyl chloride; and over 1 million employees are exposed to each of the following substances: asbestos and cadmium oxide.

OSHA has not used the OSHA or NIOSH data and estimates to help develop a basic overall plan for directing OSHA and State health inspections.

## Personnel, equipment, sampling, and analysis

During inspections for compliance with standards for toxic substances, the inspectors must (1) recognize that a toxic substance is being used, (2) collect samples of materials used (e.g., air in work areas or dust particles on equipment and other surfaces), and (3) either analyze the samples or send them to a laboratory for analysis. The inspector's ability to recognize that a toxic substance is



being used may depend heavily on his familiarity with chemicals and industrial processes. Sampling requires use of various types of sampling equipment in accordance with prescribed procedures and techniques. Analyses of these samples also require the use of special equipment and analytical methods.

#### Availability of qualified personnel

An OSHA official told us that a factor for not making more inspections for some toxic substances was the lack of qualified personnel.

OSHA has not determined which of the carcinogens, suspected carcinogens, or other high-risk substances cannot be dealt with because of the lack of qualified OSHA or State personnel. In our opinion, such determinations are needed not only for deciding how much effort should and can be devoted to inspecting for such substances, but also for hiring and training personnel to develop inspection skills.

#### Sampling equipment, procedures, and analytical methods

Several issues concerning equipment, procedures, and analytical methods need to be considered in developing an overall plan for enforcing health standards.

The acting director of OSHA's technical support unit told us that OSHA's industrial hygienists had equipment to obtain samples for most substances covered by the standards. He said, however, that there was a need to determine whether or not (1) the equipment is reliable, (2) other equipment would be better, and (3) efforts should be made to develop new and better equipment. This official said that he had no information on the quantity and quality of sampling equipment used by State industrial hygienists. OSHA's director of State programs told us that decisions on the type of sampling equipment to be used were left to the States.

As of May 1, 1977, OSHA had detailed procedures for sampling for lead, silica, mercury, and noise, and had established three sets of general, standardized procedures covering dust, metal fumes, and liquid aerosols. OSHA headquarters officials told us that OSHA did not have adequate sampling procedures for about 180 substances. These included 66 carcinogens, suspected carcinogens, or other high-risk substances. (See app. III.)

OSHA's industrial hygienists send their samples of substances to OSHA's laboratory in Salt Lake City for analysis. State industrial hygienists send many of their samples to laboratories in their States. An OSHA headquarters official said that OSHA did not know whether it and the States were using uniform analytical methods. He said that different methods can result in significantly different findings on the same substance.

According to a consultant's study completed in August 1976, OSHA has written procedures for only three analytical methods. The study said that other methods are used by laboratory personnel based on their professional knowledge and judgment. In January 1977 an OSHA official said that procedures were being developed for all analytical methods used by laboratory personnel.

NIOSH, in testing the acceptability of certain analytical methods sometimes used by OSHA, concluded in November 1976 that for 160 substances the readings varied enough to judge the methods unacceptable. These included methods used for 40 suspected carcinogens and other high-risk substances.

In June 1977 an OSHA official told us that OSHA and NIOSH were working to improve OSHA's analytical methods.

#### Degree of employers' compliance

OSHA and State industrial hygienists have visited workplaces where carcinogens, suspected carcinogens, and other high-risk substances were present. For example, as shown on page 9, our selected case-file review of fiscal year 1976 inspections in 7 States included 595 such workplaces. An OSHA official said that the OSHA headquarters office does not accumulate data on how many inspected workplaces had these substances and the degree to which employers were in compliance with the standards.

Other sources may also be useful in assessing the degree of compliance with the standards. These include (1) NIOSH surveys and evaluations of workplaces and criteria documents for proposed standards, (2) data developed for inflationary impact statements for proposed health standards, (3) medical records of workers, (4) unions, and (5) private medical studies or research efforts.

#### NEED TO BETTER DIRECT INDUSTRIAL HYGIENISTS

Without a basic overall plan for enforcement of health standards, OSHA headquarters has been unable to provide clear

direction to OSHA field offices and States with regard to inspecting workplaces likely to have high-risk hazards. OSHA and State industrial hygienists have not directed most of their efforts to such workplaces because of (1) a legal requirement that formal complaints from employees be investigated as soon as practicable and OSHA's policy to respond to informal complaints, (2) an administrative policy to respond to referrals of health matters from safety inspections, and (3) the lack of a requirement that hygienists emphasize high-risk hazards in exercising their discretion in selecting workplaces.

Of the 2,271 inspections we reviewed, 706 were initiated by employee complaints and 605 resulted from referrals by safety inspectors. The remaining 960 were self-initiated for a variety of reasons.

### Employee complaints

Section 8(f) of the 1970 act provides that employees or their representatives may request an inspection if they believe there is a violation of a safety or health standard that threatens physical harm. If OSHA determines that there are reasonable grounds to believe that such a violation exists, it shall inspect the workplace as soon as practicable. States operating under OSHA-approved plans have similar legal requirements for responding to employee complaints. Although the act states that such complaints shall be written, OSHA's policy is to respond to written or unwritten complaints if there are reasonable grounds to believe that a hazardous condition exists.

During fiscal year 1976 24 percent of OSHA's health inspections were in response to employee complaints. An OSHA official said OSHA did not know how many of the State health inspections were made in response to complaints. However, in the 7 States we reviewed, 706 of the 2,271 inspections were in response to complaints. As shown in the following table, 489 or 69 percent of those complaints were on either the low-risk substances or hazards which had not been ranked in terms of the relative risk involved.

<u>Health effect category</u>	<u>Number</u>	<u>Percent</u>
I. Carcinogens	28	4.0
II. Suspect carcinogens	22	3.1
Other chronic illnesses	39	5.5
III. Acute systemic toxicity	45	6.4
IV. Nervous system disturbance	36	5.1
V. Respiratory effects other than irritation	16	2.3
VI. Blood disturbances	-	-
VII. Irritants	31	4.4
VIII. Low-risk substances	90	12.7
Other	<u>399</u>	<u>56.5</u>
Total	<u>706</u>	<u>100.0</u>

Some of the 399 complaints involving "Other" hazards related to specific alleged hazardous conditions. For example, 73 were about excessive noise; 23 about unsanitary conditions, especially in restrooms; 15 about temperatures, either too hot or too cold; and 32 about miscellaneous other hazards. While noise can cause hearing loss, and temperature extremes or unsanitary conditions can cause discomfort or other health problems, these effects are not as serious as cancer or other fatal or irreversible damage to vital organs caused by exposure to high-risk health hazards.

Most complaints involving "Other" hazards--256-- were not specific and related to such things as fumes, solvents, ventilation, and dust. While such complaints could involve highly toxic substances, most of them did not lead the hygienists to workplaces where high-risk health hazards were identified.

It is important for OSHA to determine the potential risk of vague or general complaints about fumes, solvents, ventilation, or dust. Testimony at congressional hearings

has indicated that workers often are unaware of the identity of the hazardous substances to which they are exposed in the workplace. Thus, it may be difficult for workers to be specific as to the hazard for which the inspection is requested.

OSHA should help workers refine their complaints before deciding to schedule a workplace inspection so that industrial hygienists' time will not be spent on trivial complaints. To do this OSHA should have information on the types of hazards likely to be encountered in various workplaces and should communicate with the employer and workers or worker representatives who have submitted a complaint to determine more specifically what hazards might exist in the workplace.

As shown in the table on page 18, nearly 70 percent of the complaint inspections were in response to alleged low-risk or unranked health hazards. We recognize that in responding to such complaints, the hygienist could encounter high-risk substances that were not the subject of the complaints. The inspection files we reviewed, however, indicated that this was generally not the case. However, as discussed in chapter 4, the inspection files frequently do not contain complete information on what high-risk toxic substances were at the workplace. We question whether scarce hygienist resources should be used to visit workplaces to respond to complaints determined to concern low-risk or unranked health hazards, unless high-risk hazardous substances are also suspected to be present at the workplace.

#### Referrals by safety inspectors

OSHA and State safety inspectors often observe health hazards during their inspections and refer them to the industrial hygienists. OSHA does not have records that readily show how many of the industrial hygienists' inspections resulted from referrals. Of the 2,271 inspections we reviewed, 605 or about 27 percent resulted from referrals. As shown in the following table, 429 or about 70 percent of these referrals dealt with either the lowest-risk hazards or hazards which OSHA had not ranked in terms of the risks.

<u>Health effect category</u>	<u>Number</u>	<u>Percent</u>
I. Carcinogens	29	4.8
II. Suspect carcinogens	33	5.4
Other chronic illnesses	35	5.8
III. Acute systemic toxicity	27	4.5
IV. Nervous system disturbances	24	4.0
V. Respiratory effects other than irritation	12	2.0
VI. Blood disturbances	-	-
VII. Irritants	16	2.6
VIII. Low-risk substances	51	8.4
Other	<u>378</u>	<u>62.5</u>
Total	<u>605</u>	<u>100.0</u>

Carbon monoxide accounted for 40 of the 51 low-risk substances. Of the 378 unranked hazards, 217 were noise; 97 were unspecified chemicals, fumes, solvents, and dust; and 20 were inadequate ventilation. Responding to such referrals reduced the time available to hygienists for identifying and inspecting workplaces likely to have carcinogens, suspected carcinogens, or other high-risk substances. Although it is possible that the hygienists could find such hazards in the workplaces referred to them by safety inspectors, this did not generally happen in the cases we reviewed.

No requirement to inspect workplaces with highest risk hazards

As previously discussed, complaints by employees and referrals by safety inspectors accounted for 1,311 of the 2,271 inspections reviewed. For 702 of the remaining inspections,<sup>1/</sup> we asked OSHA and State officials what suspected health hazards caused them to select the workplaces for

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<sup>1/</sup>There were an additional 219 followup and 39 accident/fatality investigations included in our review of inspection case files.

inspection. Their responses indicated that less than 12 percent of the workplaces they selected were suspected of having carcinogens, suspected carcinogens, or substances that can cause other chronic illness.

Of the 702 inspections, 333 were made by OSHA in Massachusetts. OSHA field officials said that 327 of these were made to help meet a national goal to make a certain number of safety and health inspections in certain industries. The industries were selected on the basis of injury and illness frequency data which, as recognized by OSHA, grossly understates illness frequency and contains little on illness severity.

One hundred twenty-two of the 333 inspections in Massachusetts were at workplaces where the hygienist did not note the existence of a toxic substance or other potential health hazard. Some of the inspections were at liquor stores, grocery stores, motels, restaurants, and lounges. OSHA field officials told us that selecting workplaces on the basis of the injury and illness frequency data was partly why violations cited by industrial hygienists in Massachusetts were predominantly safety rather than health violations.

Eighty-seven of the 702 inspections were made by OSHA industrial hygienists in Idaho. OSHA officials said they selected the workplaces based on injury and illness frequency rates for various industries, information from a survey of selected workplaces in the State, and their knowledge of the types of industries likely to have health hazards. They said they lacked data on workplaces with specific health hazards and the relative risks posed by them.

We found that about 15 percent of the 87 workplaces were selected because they were suspected of having carcinogens, suspected carcinogens, and/or other substances in the two highest risk categories. For about 26 percent of the workplaces, the most serious likely hazards were either the lowest risk hazards or unranked; in about two-thirds of these, the most serious likely hazard was noise. We reviewed the files of the 87 inspections to see what kind of potential health hazards were found. Carcinogens or substances in the second highest risk category were found in 24 percent of the inspections. Noise appeared to be the most significant health hazard found in 39 percent of the cases. For 12 percent of the inspections, the files did not note the existence of any toxic substances or other potential health hazards.

The State of Washington made 44 of the 702 inspections. Forty-seven percent of these inspections were made at workplaces believed to have carcinogens, suspected carcinogens, or substances that cause chronic illness. Fourteen percent were made because they believed that a noise hazard existed at the workplaces. The State had not inspected 11 workplaces that had been identified a year earlier as workplaces where workers could be exposed to vinyl chloride.

The State of Vermont made 115 of the 702 inspections. Of those, only 5 percent were workplaces suspected of having carcinogens or substances in the second highest-risk category. In contrast, 83 percent were at workplaces where the suspected hazards were either in the lowest risk category or not ranked on the OSHA list. Over half these lowest risk or unranked hazards were carbon monoxide or noise.

Forty-five of the 702 inspections were made in Illinois. Fifty-three percent of these inspections were directed at workplaces suspected of having carcinogens, suspected carcinogens, or other high-risk health hazards. About 16 percent of the inspections were directed at workplaces likely to have the lowest risk health hazards or unranked health hazards.

The State of Oregon made 27 of the 702 inspections. Of these, 9 were directed at workplaces suspected of having substances in the second highest risk category. None of the 27 inspections were directed at workplaces with carcinogens. In contrast, 6 inspections (22 percent) were directed at noise.

The State of Minnesota made 51 of the 702 inspections. Sixteen percent of these inspections were made at firms suspected of having carcinogens, suspected carcinogens, or other high risk health hazards. On the other hand, 41 percent were directed at workplaces likely to have the lowest risk or unranked health hazards, primarily carbon monoxide.

#### Opportunities to help hygienists deal with health hazards

OSHA and States generally made little use of safety inspectors to sample for or issue citations for health hazards. As previously discussed, numerous health inspections by industrial hygienists resulted from safety officer referrals of health hazards noted during safety inspections.



OSHA has not evaluated each substance covered by its standards to determine whether safety inspectors can sample and propose citations for violations of the standards. However, in August 1976, OSHA changed its policy to permit safety inspectors to take samples and propose citations for violations of the standards on silica, noise, metal fumes and dust, and nuisance dust. This was part of OSHA's effort to put more emphasis on health hazards. Such action could also reduce referrals of these matters to industrial hygienists and allow them to spend more time on more complicated high-risk hazards. As of June 1977 OSHA did not know whether the State planned to adopt this change.

OSHA headquarters has established an annual goal to make 3,000 inspections at migrant labor camps. OSHA policy permits either safety inspectors or industrial hygienists to make these inspections. The State of Oregon requires that these inspections be made by industrial hygienists. OSHA officials in Idaho said they plan to use both safety inspectors and industrial hygienists on migrant labor camp inspections.

Migrant labor camp inspections appear to be relatively simple and routine. They cover such things as water supply, sanitary conditions in buildings and toilets, sewage and plumbing, garbage disposal, and housing construction. Because of the shortage of industrial hygienists and the need to inspect workplaces for carcinogens, suspected carcinogens, and substances that cause other irreversible effects, it would seem that inspections of migrant labor camps could be made by persons other than industrial hygienists.

In January 1976 OSHA summarized the results of a questionnaire asking 15 OSHA industrial hygienists what duties they performed that could be done by other personnel. Some of the duties mentioned were (1) keeping records of equipment and taking periodic equipment inventories, (2) keeping equipment calibration records and sending equipment to the laboratory for calibration, (3) calibrating certain equipment, (4) routine laboratory work, and (5) helping to take samples at the workplace. Relieving hygienists from such duties should give them more time for making inspections.

In June 1977 an OSHA official told us OSHA had no plans to provide assistance to the hygienists.

## OSHA PLANS TO EMPHASIZE CERTAIN HEALTH HAZARDS

In May 1977 the new Assistant Secretary for Occupational Safety and Health announced that OSHA would focus its inspection resources in high-risk industries such as construction, manufacturing, transportation, and petrochemicals. She said that because of limited resources, OSHA "\* \* \* must set priorities and make sure that we use our limited resources to attack the most dangerous problems."

In June 1977 an OSHA headquarters official told us that OSHA was emphasizing inspections of foundries, coke ovens, and workplaces having inorganic lead, silica, mercury, benzene, and pesticides. These emphasis programs will cover workplaces likely to have 2 of the 16 carcinogens, 5 of the 44 suspected carcinogens, 8 of the 128 other high-risk substances, and several other lower risk hazards.

He said that OSHA had not determined what portion of its inspections would be for lead, silica, mercury, benzene, pesticides, or at workplaces with coke ovens or foundries. Each OSHA area office will decide where to direct its inspections. OSHA did not know how much effort States operating under OSHA-approved plans will commit to these programs. OSHA anticipates that 50 percent of its industrial hygienist workforce will be used to respond to complaints, investigate accidents, and perform followup inspections.

## CONCLUSIONS

OSHA needs to establish and implement a plan for inspecting workplaces with carcinogens and other hazards that can cause death or irreversible harm to health. This will require decisions both on how much effort should be expended on the various substances and firm requirements that OSHA field offices and States direct their inspections accordingly.

Without a plan that considers what can and should be done to enforce the standards on high-risk health hazards, OSHA management has little control over their own and State industrial hygienists. Although OSHA's plan to hire and train additional industrial hygienists could result in more health inspections, their effort may not be very effective if they do not implement a plan which emphasizes inspecting workplaces with high-risk substances.

While special emphasis programs should result in more attention being directed to high-risk health hazards, these

programs affect only a few of the many industries that may expose employees to such hazards.

OSHA's ability to emphasize certain high-risk substances may be significantly hindered by the lack of qualified personnel and problems with equipment, sampling procedures, and laboratory analysis methods. Such problems cannot be dealt with until OSHA has identified, analyzed, and developed approaches to solving them; this identification and analysis should be part of its basic enforcement planning.

OSHA's ability to direct inspections to high-risk health hazards is also handicapped by the legal requirement to respond to employee complaints. We believe that the law should be amended to allow OSHA to resolve complaints about less serious matters without tying up limited resources to investigate them at workplaces. Also, OSHA should revise its policy and resolve informal complaints involving nonserious hazards when possible, without a workplace inspection. This can be done by (1) notifying the employer of the complaint, (2) requiring the employer to report to OSHA on corrective actions taken, and (3) OSHA notifying the employee of the employer's actions. Such action should be taken on vague or general complaints only after OSHA has either obtained clarification of the nature of the complaint or otherwise concluded that it involves a nonserious hazard.

#### RECOMMENDATIONS TO THE SECRETARY OF LABOR

We recommend that the Secretary of Labor direct OSHA to establish a basic health standards enforcement plan that considers:

- The relative severity of the health risks posed by the toxic substances and other health hazards covered by the standards, and whether there is a need to have some inspection coverage on each high-risk health hazard.
- The number and location of workplaces that are likely to have such health hazards and the number of workers potentially exposed to them.
- The ability of OSHA and States to make inspections with qualified personnel, reliable equipment, and proper procedures and methods for sampling and analyzing toxic substances.

- The degree of employers' compliance with the standards, as evidenced by past OSHA and State inspections or other sources.

We also recommend that the Secretary direct OSHA to (1) identify the standards on high-risk substances that cannot be adequately dealt with by OSHA or States because of the lack of expertise, equipment, sampling procedures, or analytical methods and (2) act aggressively to resolve the problem.

We recommend that the Secretary direct OSHA to require its field offices and States to:

- Concentrate their health inspection efforts, in accordance with the basic plan, on carcinogens and other substances that cause death or irreversible illness.
- Clarify the nature of each employee's complaint that is vague to determine if it involves a high-risk hazard that warrants a workplace inspection.
- Resolve informal employee complaints about nonserious hazards, when possible, without inspecting the workplace.
- Require that industrial hygienists make inspections in response to safety inspectors' referrals only if the workplaces have potential health hazards that warrant inspections.
- Permit safety inspectors to sample and prepare citations for all health hazards which do not require the expertise of an industrial hygienist.
- Utilize personnel other than industrial hygienists to inspect migrant labor camps.
- Relieve industrial hygienists of routine tasks that can be done by others.

#### RECOMMENDATION TO THE CONGRESS

We recommend that the Congress amend section 8(f) of the 1970 act to provide OSHA with authority to resolve complaints without making inspections at the workplaces unless the complaints involve potential hazards that can cause death or

serious physical harm. This can be achieved by changing the next to the last sentence in paragraph (1) of section 8(f) to read as follows:

"If upon receipt of such notification the Secretary determines there are reasonable grounds to believe that such violation or danger exists, and that such violation or danger could cause death or serious physical harm, he shall make a special inspection in accordance with the provisions of this section as soon as practicable, to determine if such violation or danger exists; if the Secretary determines that there are reasonable grounds to believe that a violation or danger exists that threatens physical harm not of a serious nature, the Secretary shall notify the employer of the complaint, require the employer to report on corrective actions taken, and shall notify the complainant in writing, of the employer's actions."

#### AGENCY AND STATES' COMMENTS AND OUR EVALUATION

The Department of Labor, in a January 23, 1978, letter, commenting on a draft of this report (see app. IV), agreed that health inspection resources must be focused on high risk health hazards and stated that OSHA had taken several steps to improve its ability to identify and inspect workplaces where the most serious hazards exist.

Labor said that OSHA

- Was developing a planning model and evaluation system that would provide data it can use in deciding where to focus enforcement resources. The model will identify health hazards by industry, estimate the number exposed to each health hazard by industry, and quantify the relative toxicity of known hazards. The model will be tested during fiscal year 1978.
- Was hiring more industrial hygienists and upgrading the training of Federal and State personnel.
- Was requiring inspectors to spend at least 70 percent of their time inspecting or doing compliance related activity.

- Was revising its instructions for inspecting migrant labor camps to state that industrial hygienists should be used only when circumstances require their specialized expertise.
- Had awarded contracts for evaluating its sampling techniques and instruments. It plans to add an analysis development group to its Salt Lake City laboratory and will give its Cincinnati laboratory responsibility for instrument evaluation, quality control, and instrument specification testing.
- Had revised its procedures for handling nonformal employee complaints that do not present a serious hazard. An area director who determines that an inspection is unnecessary can contact the employer directly to try to resolve the complaint.
- Is requiring area directors to seek additional resources when worker complaints exceed 30 percent of available inspection resources. Regional administrators will reassign personnel or seek personnel from other regional offices.
- Is allowing safety inspectors to sample for some health hazards.
- Is using industrial hygienist trainees to help industrial hygienists with routine or repetitive tasks.

If properly developed and implemented, OSHA's plans and actions should result in a more effective health enforcement effort. OSHA could, however, take further action to insure that (1) maximum use is made of safety inspectors in sampling for health hazards, (2) industrial hygienists' time is better utilized, and (3) physical health hazards such as radiation and noise are included when it quantifies the relative severity of health hazards. Also, further action is needed to enable industrial hygienists to resolve complaints involving nonserious hazards without inspecting the workplace. These matters are discussed below.

OSHA's new policy for cross-training compliance safety inspectors only permits safety inspectors to take samples and propose citations for violations of the standards on silica, noise, metal fumes and dust, and nuisance dust. OSHA should evaluate each substance covered by its standards to determine whether safety inspectors can sample and propose citations for violations of the standards.

Labor said that industrial hygienist trainees help the industrial hygienists perform some routine tasks such as preparing instruments for inspection. We believe that additional opportunities exist for personnel who are not industrial hygienists to provide assistance to industrial hygienists, particularly in performing routine and repetitive tasks.

Labor said OSHA's planning model will quantify the relative toxicity of known hazards. It said that it plans to refine the model and is considering optional weighting factors for considering employee exposure. We believe that OSHA's model should include data on physical health hazards as well as chemical hazards so that dangers from radiation, heat, and noise, for example, will be considered when inspection priorities are established.

OSHA's revised procedures for responding to nonformal complaints (those that are not in writing, signed, or specific) will only partly eliminate the burden that complaints involving nonserious matters placed on scarce industrial hygienist resources. We believe OSHA should be provided the authority to resolve formal as well as informal complaints without making inspections at the workplaces if OSHA can determine that the complaints involve potential hazards that would not cause serious physical harm. We do not advocate weakening the employee's right to resolution of hazards perceived in the workplace. We recognize that the employee plays a vital role in the identification of workplace hazards and needs an effective mechanism to insure timely corrections. We continue to believe, however, that OSHA should have alternatives available for insuring correction of conditions which pose no serious threat to the health of workers.

Minnesota and Washington, in responding to a draft of this report, said that more inspection resources are needed. They commented also on the number of complaints they must respond to and the OSHA categorization of relative hazard severity.

The State of Minnesota said it did not agree that the 128 substances categorized by OSHA into the 3 highest risk categories represented the substances posing the most serious health hazards for workers. It said some substances are widely known to be very toxic and the need for good control measures is recognized by industry. It maintained that others are rarely found in industry and, still others, because of their physical property or method for use, provide little opportunity for exposure.

We agree that OSHA's categorization of substances can be improved. We do not propose that only substances categorized by OSHA in the highest categories receive attention. Rather, OSHA should develop a priority system for deciding where inspectors should go and what they should look for. These priorities should be based on the seriousness of the threat these substances pose to workers.

Minnesota acknowledged that complaints comprise a disproportionate part of its health investigations and said that more staff is needed. It said investigating complaints is important and necessary, and should not be reduced.

We agree that employee complaints should receive proper attention to insure that hazardous conditions are corrected. However, we believe that when such complaints involve matters which do not pose a threat of serious harm to workers, such as unsanitary rest rooms, industrial hygienists should not be used to resolve such complaints. Action could be taken to notify the employer of the alleged condition, to require the employer to report to the agency on how the condition was corrected, and then to contact the complainant to determine if the matter had been resolved. OSHA has begun to follow this procedure in certain instances.

Washington and Minnesota noted that more resources are needed to inspect workplaces. Washington said that because of its limited resources, it did not agree that all its efforts should be directed at carcinogens and other high risk hazards at the sacrifice of conducting inspections at workplaces with hazards of moderate severity which involve many more workers. Washington believes that more people are exposed to moderately severe conditions such as noise, temperature extremes, and unsanitary conditions, and that they should not be ignored "to check out a minimum number of fatality-type causing hazards."

Staffing resources have and will continue to remain a problem because of the limited number of industrial hygienists. Because of this, it is important to make optimum use of industrial hygienist resources by directing them to identify and deal with those substances posing the most serious threat to workers' health. We do not advocate ignoring particular hazards or large groups of employees. Potential hazards such as noise and temperature extremes can and should be evaluated if they are present in the workplace, but should not, in our opinion, be established as a priority over inspections of workplaces using carcinogens or other substances which can cause death or serious illness.



## CHAPTER 4

### CAN WORKERS RELY ON INSPECTIONS

#### FOR PROTECTION?

This question cannot be answered "yes" by reviewing the Occupational Safety and Health Administration and State inspection records. The records frequently do not give complete information on (1) what high-risk toxic substances were at the workplaces, (2) whether and how the inspectors checked for compliance with the standards on such substances, and (3) whether and how the employers were in compliance with the standards. Because inspectors are not required to record the answers to these basic questions, there is little control over the quality and completeness of the inspections.

Our review of inspection files and visits to workplaces raised questions as to whether workers can rely on OSHA or State inspections to tell them whether they are adequately protected from high-risk toxic substances in the workplace.

#### HAZARDS OVERLOOKED OR NOT PROPERLY EVALUATED

In response to an employee complaint, an Oregon industrial hygienist and safety inspector inspected a charcoal briquet plant in May 1976. The plant was cited for one health violation: lack of a written program on the use of respirators. This violation was called nonserious and no penalty was assessed. In November 1976 we visited the briquet plant with an OSHA inspector who found what he considered to be a violation of the standard on asbestos (a carcinogen). The violation involved failure to enclose asbestos scraps in sealed containers.

The specific conditions causing the violation may not have existed in May 1976 when the State inspection was made. However, the record of that inspection did not note (1) whether asbestos material was in the workplace, (2) whether the inspector checked for compliance with the asbestos standard, and (3) whether and how the employer was or was not in compliance. The State inspector's supervisor said that asbestos is a common potential hazard in high temperature processes, such as briquet manufacturing.

In another case, OSHA inspected a battery plant in Illinois in December 1973 and cited the employer for violating the inorganic lead standard. Inhalation, ingestion,

or absorption of inorganic lead causes severe disorders of the blood, digestive system, liver, kidneys, and nervous system. The OSHA standard limits airborne lead to 0.2 milligrams per cubic meter of air.<sup>1/</sup> The inspector found 0.232 milligrams per cubic meter in one area of the plant. OSHA cited this as a nonserious violation, assessed a penalty of \$150, and set the correction deadline date at February 4, 1975.

In August 1975 OSHA inspected the battery plant again and took lead samples in the area of the previous violation and two other areas. The level in the area where the first violation was found was 0.26, and in one of the two other areas was 0.34 milligrams per cubic meter. OSHA cited these violations as nonserious, assessed no penalty, and set a correction deadline date of November 30, 1975.

In January 1976 OSHA again inspected the battery plant, taking lead samples in the two areas found in violation in August 1975 plus another area not sampled in either of the two prior inspections. The levels in one area previously found in violation and the area sampled for the first time were below the limit. However, the level in the area cited in the first and second inspections was 0.328. OSHA cited the employer for a willful violation, proposed a \$2,000 penalty, and set the correction date at October 30, 1976.

After a conference with battery plant officials in June 1976, OSHA amended the citation from willful to nonserious and dropped the proposed penalty to zero. OSHA officials said that the citation was changed because the employer submitted an acceptable abatement plan. To issue a willful violation, OSHA must prove that an employer made no reasonable effort to eliminate the hazard. OSHA officials said they could not sustain a willful violation because the file had been misplaced. The deadline date for correcting the violation remained October 30, 1976.

In November 1976 we accompanied an OSHA inspector on another inspection of the battery plant. The inspector sampled for lead in 10 work areas, several of which were not covered in the 3 previous inspections. Exposure

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<sup>1/</sup>OSHA has proposed lowering the amount of airborne lead permitted to 0.1 milligrams per cubic meter of air.

exceeded the standard in 4 areas, including two areas where violations were found previously. The levels ranged from 0.23 to 0.7 milligrams per cubic meter of air (more than 3 times the limit). The inspector also sampled for sulfuric acid and antimony. The level for antimony was within the standard, but the level for sulfuric acid in one work area was more than twice the level permitted by the standard. Previous inspection records did not disclose the presence of three high-risk substances (arsenic, antimony, and carbon black) which were noted during the November 1976 inspection. OSHA cited the employer for serious violations, repeat violations, and failure to correct violations. OSHA proposed penalties totaling \$23,600 and set various correction dates, the latest of which was October 1977. The employer has contested the citations.<sup>1/</sup>

In another instance, the State of Washington responded to a complaint about the cold temperatures in the office and other work areas at a medical equipment manufacturer. The State had information which indicated that workers in the plant could be exposed to vinyl chloride (a carcinogen). The industrial hygienist checked the temperature and found it acceptable. He did not check for vinyl chloride or any other hazards in the workplace. A State official said the State had previously inspected this plant several years earlier and had checked for compliance. He said that the industrial hygienist probably did not check for vinyl chloride or other hazards because he was investigating a complaint and because a prior inspection had been made. The record of the State's prior inspection, however, did not show whether samples were taken for vinyl chloride.

During another inspection in Washington, a State industrial hygienist went to an aluminum plant in response to a complaint about carbon monoxide from a fork lift's exhaust. Although the State had information showing that in such plants workers could be exposed to asbestos, vinyl chloride, benzene, and several other dangerous substances, the industrial hygienist did not check for such substances. In commenting on a draft of this report a State official said that all aluminum plants had been

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<sup>1/</sup>The act permits an employer to contest a citation or proposed penalty within 15 working days after receipt of the citation. Contested citations are settled by the Occupational Safety and Health Review Commission.

inspected at one time or another and would be again in the future. He said that due to limited resources, the industrial hygienist responded only to the complaint.

In Minnesota, a State industrial hygienist inspected a jewelry maker in May 1976 in response to a safety inspector referral about noise and acids. The inspection file showed that the hygienist took noise readings and that the firm used 17 toxic substances, including silver. The inspection file did not show why the hygienist did not sample the air for the substances. He told us he thought the ventilation system was adequate. At our request, the State reinspected this workplace and took air samples for some of the 17 substances. Levels of silver dust in two areas were 7 and 21 times that allowed by the OSHA standard. Exposure to silver dust causes skin and kidney damage and is considered by OSHA to be a serious hazard if the standard is exceeded. The State issued a nonserious citation because respirators were worn.

In another case, an employee of an asbestos products manufacturer informed the State of Washington of alleged violations of the asbestos standard in his workplace. During a December 1975 inspection in response to the complaint, a State industrial hygienist found that a consultant was working with the firm to develop a plan for reducing exposure to asbestos. The hygienist did not sample for airborne asbestos and decided not to make a complete inspection until the employer had time to implement the plan. The State notified the employee that no violations were observed during the inspection.

In October 1976 a State hygienist had returned to the workplace and had sampled the air for asbestos. The State hygienist told us, however, that the sample had too much dust to permit an accurate count. The hygienist returned to the workplace in December 1976 and took samples which showed that airborne asbestos exposures were as high as 11 times that permitted by the standard. The State cited the violation as nonserious, assessed a penalty of \$150, and set the correction deadline date for August 1977, 20 months after the employee expressed concern. The State hygienist indicated the violation was considered nonserious because the firm provided approved respirators for its employees. In commenting on a draft of this report in October 1977, the State said that under its revised procedures the violation would have been classified serious.

In Oregon during a March 1976 inspection, a State industrial hygienist noted that asbestos was in the workplace but did not sample the air or check for compliance with any other requirements in the asbestos standard. An OSHA hygienist accompanied us to the workplace in November 1976. His samples showed that the employees were exposed to asbestos at nearly twice the limit. He also found that the employer was in violation of several other requirements in the standard. At OSHA's request, the State reinspected the workplace in January 1977 and cited the employer for 12 nonserious and 2 serious violations, assessed penalties totaling \$245, and set various correction deadlines--the latest of which was April 21, 1977.

As shown in the preceding examples, OSHA and States frequently did not take samples to make sure that the level of toxic fumes, dust, or particles did not exceed the standards. OSHA does not know how many of its or the States' inspections included samples for toxic substances. However, during fiscal year 1976, OSHA industrial hygienists sampled for substances in only 6,449 instances during their 11,889 inspections.

As discussed in chapter 2, inspectors frequently did not identify high-risk substances in the workplaces inspected. In addition, when these substances were identified, inspectors frequently did not take air samples to evaluate whether substance concentrations exceeded allowable levels. For example, the case files for 1,444 inspections in Idaho, Illinois, Minnesota, Oregon, and Washington indicated over 100 instances in which the hygienists noted but did not sample for carcinogens, suspected carcinogens, or substances that cause other chronic illness. In many cases, the reasons for not obtaining samples during inspections were not explained in the files. Reasons given by hygienists during discussion with us included the following:

- Personal judgment indicated that the substance did not exceed the limit.
- Needed equipment was not brought to the workplace.
- Worker exposure was intermittent.
- Employer monitoring equipment indicated compliance with the exposure limit.
- Operations were shut down at the time of inspection.

--The inspection was limited to responding to a complaint or referral on some other hazard.

We question whether these are valid reasons for not sampling for carcinogens and other high-risk substances. If the inspector does not have needed equipment with him or if the operations are shut down, the inspector should return later.

HAZARDS BUT NO STANDARDS--  
WHAT SHOULD BE DONE?

Inspectors encounter some dangerous health hazards for which there are no standards. The only enforcement action that can be taken in these cases is to cite the employer under the "general duty" clause in section 5 of the act (see p. 3). This would require demonstrating that the hazard is a recognized hazard that is causing or is likely to cause death or serious physical harm. OSHA believes such demonstration can be difficult. Another way to protect workers from hazards not covered by the standards would be to consult with employers and employees on the risks involved and the protective measures that should be taken.

OSHA has not provided adequate guidance to its field offices or to the States on what should be done to protect workers from health hazards not covered by standards. Following are examples of the need for improved guidance on this matter.

In May 1973 OSHA issued an emergency temporary standard to protect workers from grave danger posed by MOCA (a carcinogen). The emergency standard was revised in July and was superseded by a permanent standard in January 1974. The standard was vacated by a Federal court in December 1974 because OSHA made a procedural error. The court upheld OSHA's finding on MOCA's carcinogenicity. Subsequently, OSHA told us that a directive issued to its field offices was intended to provide guidance for dealing with MOCA under the general duty clause. OSHA did not say what parts of the vacated MOCA standard should be enforced under the general duty clause. The vacated standard contained numerous requirements for establishing regulated areas where MOCA is manufactured, processed, used, repackaged, released, handled, or stored, and for controlling each such area. Such controls included having

--employees wash their hands, arms, faces,  
and necks upon leaving an area or completing  
certain tasks;

- restricting access to areas to authorized personnel;
- prohibiting open vessel system operations;
- providing continuous exhaust ventilation;
- having employees wear protective clothing, shoe covers, gloves, and respirators;
- placing clothing and equipment in special containers at point of exit for decontamination or disposal;
- having employees shower at the end of the day; and
- prohibiting drinking fountains in the area.

In May 1976 an OSHA industrial hygienist in Massachusetts found that six workers were exposed to airborne MOCA dust in the area and on working surfaces. He cited the employer for violating two standards that require employers to provide clean uniforms and a respirator program.

The hygienist told us that he did not use the general duty clause to enforce the vacated MOCA standard because airborne levels were lower than that being considered by OSHA in developing a new MOCA standard. An OSHA headquarters official told us in November 1976 that OSHA had not decided on an exposure limit for MOCA. The inspector's citation did not require the employer to adopt any of the numerous protective measures in the vacated standard, and the file did not indicate that the inspector informed the employer or employees of such measures.

A Minnesota industrial hygienist found in November 1976 that employees of a tool manufacturer were using cutting oils contaminated with nitrosamines. In October 1976 the National Institute for Occupational Safety and Health issued a hazard alert stating that nitrosamine-contaminated cutting oils were suspected carcinogens and describing precautions that should be taken when using them. The State did not have a standard on such cutting fluids. Although the inspector gave the employer a copy of the NIOSH hazard alert, he did not tell the workers what protective measures should be taken.

In Oregon, employees complained that an insecticide used in a grocery warehouse was burning their eyes and lungs, and causing headaches. During an inspection in November 1975, an inspector determined that the insecticide contained "petroleum hydrocarbons, pyrethrins, and synergists." Although he suspected that the insecticide may cause health problems, he was not familiar with it. The hygienist told us that because the State did not have a standard on the pesticide, no enforcement action could be taken. He did not advise the employees whether there might be dangers associated with the pesticide or what protective measures might be taken. The inspector did not check to see whether OSHA, NIOSH, or the Environmental Protection Agency had information on the substance.

In another case, a Minnesota State industrial hygienist found wollastonite at a workplace during a March 1976 inspection. Although there was no health standard on this substance, the inspector read an article in a scientific journal which indicated that wollastonite may have the same fibrous qualities as asbestos (a carcinogen).

NIOSH officials told the inspector that wollastonite was highly suspected to be a form of asbestos, but studies had not been made to clarify this. The inspector's samples showed employee exposures that were above the limit for asbestos. However, because the inspector did not know if wollastonite could be included among minerals classified as asbestos, he did not enforce the asbestos standard. The employer said he would voluntarily provide the employees with respirators. The asbestos standard permits the use of respirators only as an interim measure until engineering controls are implemented, or in emergencies, or when engineering controls are not feasible. Also, the standard requires various other work practices and medical surveillance.

No further action was taken by the State to determine whether wollastonite was damaging the health of the exposed workers.

#### INADEQUATE FOLLOWUP OF CITED VIOLATIONS

OSHA policy requires a followup inspection for any violations classified as serious. Such a followup is to be made within 7 work days after the correction deadline stated in the citation. Inspectors may, but are not required to, make a followup inspection for nonserious violations.



Less than 5 percent of 25,000 health violations cited by OSHA and the States in fiscal year 1976 were classified as serious. In the States we reviewed, violations involving carcinogens and other high-risk substances were frequently cited as nonserious. For example:

- In Massachusetts, overexposure to lead was identified during inspections at eight workplaces during fiscal year 1976, but only two were cited as serious violations.
- In Minnesota, violations of the MOCA standard's requirements for regulated areas, protective clothing, and warning signs were not cited as serious.
- In Oregon, violations of the standard's requirements for benzidine (a carcinogen) pertaining to warning labels, regulated areas, and informing employees of the hazard were not cited as serious violations.
- In 5 States, 137 violations of the asbestos standard were cited: 6 were called serious and 131, nonserious. As shown on page 34, one violation was called nonserious even though the asbestos exposure was 11 times that permitted by the standard.

We noted instances where followup inspections were not made for some of the nonserious violations listed above that pertained to carcinogens and other high-risk substances. In addition, we noted that some violations cited as serious were not followed up. For example:

- OSHA cited a hospital in Illinois for a serious violation of the mercury standard and set the correction deadline at March 15, 1976. We noted that a followup inspection had not been made as of April 1977 and informed OSHA. In May 1977 OSHA made a followup inspection at the hospital and found that the amount of mercury in the air did not exceed that permitted by the standard. The OSHA inspector, however, cited the hospital for (1) a repeat violation of a standard that prohibits storing and consuming food in areas where toxic chemicals are used and (2) a serious violation of

the standard requiring employees to wear protective clothing. The correction date for the serious violation was set at July 1, 1977. As of July 11, 1977, OSHA had not made the followup inspection.

--OSHA cited an Illinois scrap metal processor for a serious violation of the standard on methylene chloride. Overexposure to this substance had resulted in hospitalization of eight employees. The correction date was set at July 1, 1976. As of June 1977 no followup inspection had been made.

In commenting on a draft of this report in January 1978, OSHA did not indicate whether it had made a followup inspection at these workplaces.

In Vermont and Oregon, we noted several instances in which followup inspections were made without taking air samples to make sure the actions taken by employers reduced exposure to permitted levels.

#### OSHA ACTIONS TO IMPROVE HEALTH INSPECTIONS

In August 1976 OSHA modified its procedures to require that industrial hygienists record information on all substances and physical agents found during inspections. OSHA informed States about the change in procedures but an OSHA official told us OSHA did not know how many States had adopted such requirements. Also, according to OSHA headquarters officials, the requirement does not apply to inspections in response to complaints.

In December 1976 OSHA issued new procedures for classifying health violations as serious or nonserious. For virtually all substances covered by standards, the procedures specify the exposure levels above which a violation should be called serious. For carcinogens, the procedures say that any level in excess of the exposure limit will be cited as serious. This is also the case for suspected carcinogens and other substances that cause chronic illness, unless employee exposure is infrequent or brief. The procedures state that for carcinogens and all other substances, violations will not be cited as serious if properly fitted respirators are worn. The procedures provide also that eating or drinking in areas contaminated with toxic substances that can be ingested or absorbed are to be cited as serious violations. The procedures did not specify what these toxic substances were.

OSHA's December 1976 procedures should result in hygienists classifying more violations as serious. However, OSHA did not know whether States planned to adopt the procedures. In October 1977 Washington advised us it had adopted the procedures. Also, the procedures will still permit many violations of the standards on carcinogens, suspected carcinogens, and other high-risk substances to be cited as nonserious, in that:

--Infrequent or brief exposures to substances other than carcinogens may be cited as nonserious.

--Exposure at any level may be cited as nonserious if respirators are worn.

--The procedures are silent on how to classify violations of such requirements as employee information and education, employee medical surveillance, and most of the safe work practices for carcinogens.

Use of respirators or infrequent or brief exposure to carcinogens and other high-risk hazards does not assure that workers are protected from harm. Informing and educating workers about the dangers of hazardous substances and safe work practices, and providing them medical surveillance are actions important to protecting workers.

In our opinion, violations of standards designed to protect workers from carcinogens and other high-risk health hazards should be considered serious so that followup inspections will be required.

## CONCLUSIONS

OSHA and State industrial hygienists' inspections frequently did not provide convincing evidence that employers provided the worker protection required by the standards on carcinogens, suspected carcinogens, and other substances that cause chronic illness.

If such inspections are to be relied on to see that the occupational health conditions are improved at workplaces using such substances, OSHA must provide clear guidance and act decisively to require that OSHA and State inspectors (1) identify and properly evaluate all high-risk substances at each workplace inspected, (2) enforce the standards or, if no standard exists, enforce the general duty clause or take such actions as consulting with employers and employees

to help improve protection from substances that can cause death or irreversible harm, and (3) make followup inspections to see that employers take actions needed to protect their workers from such high-risk substances.

The actions taken by OSHA in August and December 1976 should result in some improvement, but more needs to be done.

#### RECOMMENDATIONS TO THE SECRETARY OF LABOR

We recommend that the Secretary of Labor direct OSHA and the States to require their industrial hygienists to:

- Identify and record all high-risk substances at each workplace inspected.
- Check for and document whether employers are in compliance with each requirement in the standards for at least the high-risk substances that are used in each workplace inspected. For high-risk substances with exposure limits, samples should be required if there is any potential for the substance being present in the workplace air.
- Record how the employer is complying with the standards for each high-risk substance.
- Reinspect workplaces using high-risk hazards, if samples could not be or were not taken, to evaluate compliance with applicable exposure limits.
- Cite as serious violations all violations of requirements in the standards for protecting workers from carcinogens, suspected carcinogens, and other high-risk hazards.
- Perform followup inspections at all workplaces which violate the standards covering carcinogens, suspected carcinogens, and other high-risk substances to determine if the violations have been corrected. Samples should be taken to determine whether the employers' actions have reduced employee exposure to such substances to permissible levels.

The Secretary should require OSHA to protect workers from potentially serious hazards not covered by a health standard and decide whether OSHA and State inspectors should enforce the general duty clause or take other actions such

as consulting with employers and employees to help improve worker protection.

### AGENCY COMMENTS AND OUR EVALUATION

The Department of Labor agreed with most of our recommendations and provided information on actions taken or proposed to improve industrial hygienists' inspections. (See app. IV.) Labor said OSHA had completed its Industrial Hygiene Field Operations Manual, recognized the need to provide clearer guidance to its industrial hygienists, and proposed to issue a regulation requiring that major Federal program changes be implemented by the States within six months. It also said that examples of inadequate State inspections identified in this report had been reported to regional administrators, would be investigated, and appropriate recommendations made.

Labor said that our recommendations concerning improvement of health inspection procedures and their documentation are addressed in the new Industrial Hygiene Field Operations Manual. However, we believe the manual is not clear as to whether it requires the industrial hygienist to identify and record all toxic substances found during all types of workplace inspections. For example, the manual is not clear as to whether all toxic substances in the workplace must be identified and recorded when an industrial hygienist responds to a complaint.

Labor said the manual also requires that inspectors check for and record whether or not employers are in compliance with the standards for high-risk substances. We agree with such a requirement. However, the manual does not state that all high-risk substances used in the workplace will be sampled and the results recorded to show whether and how employers are in compliance. Also, the manual does not direct the industrial hygienists to reinspect workplaces that use high-risk substances when samples could not be or were not taken to assure compliance with the standards.

Labor said that OSHA revised the Industrial Hygiene Field Operations Manual to improve the quality and completeness of health inspections. The manual contains requirements for conducting inspections, including sampling techniques and criteria for classifying violations.

As of January 1978 10 States had not yet adopted the new procedures or developed procedures approved by OSHA. Labor said that eventually all States will be required to

adopt the industrial hygiene manual or develop an OSHA-approved one. Labor said that OSHA planned to issue a regulation requiring States to adopt major program changes within 6 months. We believe that OSHA should require States to promptly adopt or develop the revised procedures so that workers in those States will benefit from better inspections.

As stated on page 41, OSHA's procedures still permit many violations of the standards for suspected carcinogens and other high-risk substances to be cited as nonserious because:

- Infrequent or brief exposures may be cited as nonserious.
- Exposure at any level may be cited as nonserious if respirators are worn.

Also, the procedures do not indicate how to classify violations of such requirements as employee information and education, employee medical surveillance, and most of the safe work practices for carcinogens.

Labor disagreed that all violations of high-risk substances should be classified as serious when the exposure is above the allowable limit for a serious violation as stated in the industrial hygiene manual's classification of health violations. Labor believes that violations may be cited as nonserious if employee exposure is infrequent, brief, or otherwise unpredictable.

Some substances have cumulative effects, and even brief or infrequent exposures over a period of time may cause serious harm. Allowing industrial hygienists discretion in citing violations of standards concerning high-risk substances could result in (1) inconsistent classification of violations by industrial hygienists, (2) no followup inspection to assure correction of a hazardous condition, and (3) the potential for a lesser concern by all involved in dealing with a hazardous condition because of the connotation of nonserious.

Labor agreed that the use of respirators in areas in which a toxic substance is at a serious level should not abolish the requirement that failure to institute feasible engineering or administrative controls be cited as a serious violation. Labor said sections of the field operations manual and the industrial hygiene manual which are inconsistent with this policy will be revised.

Labor acknowledged that OSHA has not established a written policy specifically concerned with classifying violations of requirements in standards for employee information and education, medical surveillance, and most safe work practices for carcinogens. Labor said that such a policy may be needed. We believe that OSHA should establish such a policy.

Labor said that OSHA's policy requires a followup inspection to assure the abatement of all serious violations, and that samples may be taken to assure abatement. Under OSHA's current procedures, however, there may be times when exposure to carcinogens, suspected carcinogens, and other high-risk substances may be classified as nonserious, and therefore, do not require a followup inspection. We believe that exposure to any high-risk substance should be followed up to insure abatement. During the followup, sampling should also be required for high-risk substances to determine whether the employers' actions have reduced employee exposure.

Labor said that it is OSHA's practice to use the general duty clause to protect workers from potentially serious hazards not covered by a standard. However, we found instances where the general duty clause was not used. Also, using the general duty clause requires demonstrating that the hazard is a recognized one that is causing or is likely to cause death or serious physical harm. OSHA believes that such a demonstration can be difficult. Where it cannot be demonstrated that the hazard is a recognized one, we believe that other means for protecting the worker should be considered, such as, advising employers and employees on the risks involved and the protective measures that should be taken. In our opinion, OSHA needs to improve its guidance to industrial hygienists on this matter.

## CHAPTER 5

### ADDITIONAL DATA NEEDED TO EVALUATE

#### EFFORTS TO DEAL WITH HIGH-RISK HAZARDS

The Occupational Safety and Health Administration does not know to what extent OSHA and State inspections have addressed and eliminated high-risk health hazards. This is because OSHA has not accumulated adequate data for evaluating the effectiveness of past inspection efforts in dealing with specific health hazards.

Because OSHA does not accumulate adequate overview statistics on the results of its inspection programs, it does not know

- what high-risk substances are used in workplaces that it and States have inspected,
- what the level of each substance was in workplaces inspected,
- what means employers were using to comply with each standard,
- how many workers were exposed to substances evaluated, and
- how many workers are no longer exposed to specific hazards because employers corrected conditions after OSHA or State inspections.

Without such information, OSHA has been unable to perform a meaningful evaluation of its efforts to protect workers from serious health hazards.

#### INCOMPLETE INSPECTION DATA

OSHA's management information system collects data on OSHA and State inspections. Through fiscal year 1976, OSHA had spent or allocated about \$25 million, including system development cost, to collect safety and health statistics.

The information collected on inspections consists primarily of the number of inspections, number and type of violations cited, number and amount of penalties assessed, and staff hours expended on various activities. Monthly, quarterly, and annual reports are prepared summarizing these data by State or OSHA area, regional, and national offices.



Additional information is collected on OSHA but not State health inspections. A report is prepared showing the number of times the various toxic substances or physical agents were sampled by OSHA health inspectors. Data on sample results, citations, and the number of employees affected by OSHA inspections are also accumulated for those OSHA inspections where samples were taken.

However, these data do not tell management about high-risk substances that were used in the workplaces inspected but not sampled. If samples are not taken for substances identified in the workplace by the OSHA inspector, data on the substances are not included in OSHA's statistics. These missing data are needed to identify those workplaces which use highly toxic substances.

OSHA does not collect data showing the extent to which State inspections have addressed high-risk hazards. Such data are also needed to perform a more meaningful evaluation of the total health inspection effort. For example, 1,673 of the health inspections reported to OSHA by Oregon and Washington for fiscal year 1976 were culinary, migrant labor camp, and radiation inspections which dealt primarily with low-risk or unranked health hazards.

Furthermore, OSHA does not accumulate data showing the extent to which OSHA and State inspections have resulted in employers correcting hazards associated with specific high-risk substances and the number of workers affected. Consequently, OSHA does not know to what extent its and States' inspections have resulted in workers being protected from health hazards.

#### BETTER DATA ON WORKER EXPOSURE TO HEALTH HAZARDS NEEDED

As discussed in chapter 3, OSHA had not established goals for the amount of enforcement effort that should be devoted to high-risk health hazards. Furthermore, the OSHA field offices and States included in our review had made little effort to identify firms using high-risk substances or the numbers of workers that are exposed to high-risk health hazards. As a result, none of the OSHA or State officials in these seven States were able to provide us with reliable estimates about how many workers are exposed to such hazards in their respective areas.

The Toxic Substances Control Act (Public Law 94-469, Oct. 11, 1976) permits the Administrator of the Environmental

Protection Agency to require chemical manufacturers and processors to submit to the agency the names of the chemicals they are producing, the quantities produced, the health effects of the chemicals, and estimates of workers exposed. These data could be useful to OSHA in scheduling inspections.

In our report to the Congress, "Better Data on Severity and Causes of Worker Safety and Health Problems Should Be Obtained From Workplaces" (HRD-76-118, Aug. 12, 1976), we recommended that OSHA, in consultation with the National Institute for Occupational Safety and Health set up a program to obtain data from employers on employee exposure to and the effects of toxic chemicals and other health hazards. Such information on worker exposure is still needed. OSHA should consult with NIOSH and the Environmental Protection Agency on the best way to obtain such data.

Without information on worker exposure and enforcement goals, OSHA and State officials do not have an adequate basis for evaluating the effectiveness of their inspections in addressing serious health hazards.

### CONCLUSIONS

To adequately evaluate health enforcement efforts, OSHA needs to modify its information system to insure that data are accumulated on the extent to which OSHA and State inspections have covered specific health hazards. Such a system should include data on worker exposure to serious health hazards in each of the States and data on the number of employees removed from exposure to the hazards identified during inspections.

A system containing the information discussed in this chapter would provide OSHA with information for scheduling inspections, monitoring the results, and evaluating progress in reducing worker exposure to high-risk hazards. Such a system should enable OSHA and the States to better evaluate the effectiveness of their efforts to protect workers from high-risk health hazards.

### RECOMMENDATIONS TO THE SECRETARY OF LABOR

We recommend that the Secretary of Labor require:

- OSHA to modify its management information system to insure that information is collected on the extent to which its and State inspections have covered high-risk health hazards, including

the results of such inspections and the extent to which workers have been protected from exposure to hazards identified.

- OSHA to compare the inspection results to inspection goals set for each of the health hazards to evaluate progress and identify needs for redirection.
- OSHA and State field offices to evaluate the extent that their inspections have addressed the high-risk hazards in workplaces in their geographical areas.
- OSHA to identify firms making or using high-risk substances and the number of workers exposed to such substances.

#### AGENCY COMMENTS AND OUR EVALUATION

The Department of Labor agreed with our recommendations. (See app. IV.) It said OSHA plans to revise the form used to gather data for evaluating its efforts and to compare planned goals with actual inspection results. Labor said that OSHA acknowledges that its data collection and program evaluation efforts require substantial improvement.

Labor mentioned several current and planned efforts for measuring health inspection effectiveness. However, before OSHA can measure what it is accomplishing, it must develop, as discussed in chapter 3, a basic plan for directing inspections to high-risk health hazards. After development and implementation of the plan, OSHA can then measure its effectiveness in meeting its inspection goals and protecting workers from lethal and other serious health hazards.

HIGH-RISK SUBSTANCES NOT IDENTIFIED IN  
ANY OF THE INSTANTIONS REVIEWED  
BY GAO IN THE SEVEN STATES

<b>Carcinogens:</b>	2-acetylaminofluorene Alpha-naphthylamine 4-aminodiphenyl Beta-naphthylamine Beta-propiolactone Bis-chloromethyl ether	3,3-dichlorobenzidine 4-dimethyl aminoazobenzene Ethyleneimine Methyl chloromethyl ether 4-nitrobiphenyl N-nitrosodimethylamine
<b>Suspected carcinogens:</b>	Aldrin Benzyl chloride Butyl chromate-tert Calcium arsenate Chlordane Cyclohexylamine DDT Diacromethane 1,2-Dibromoethane Dieldrin 1,1-Dimethylhydrazine	Dioxane technical grade Erdin Heptachlor Hydrazine Lead arsenate Lindane Monomethyl hydrazine Nickel carbonyl Esterone O-celuidine Vinyl cyclohexane dioxide
<b>Other high risk substances:</b>	Acetylene tetrabromide Allyl chloride 2-Aminopyridine Anisidine Antu Bismuth telluride Bromoform P-Tert-Butyl toluene Captan Carbaryl  Carbon disulfide Carbon tetrabromide Catechol Chlorinated camphene Chlorinated diphenyl oxide Chlorobromomethane Chlorocycrene Crag herbicide Cyclohexanol Cyclohexane  Dichloroacetylene P-Dichlorobenzene 1,1-Dichloroethane 1,2-Dichloroethane Dicyclopentadiene Difluorodibromomethane Dimethyl acetamide Dimethylamine Dinitro-o-cresol Dinitro-o-toluamide  Diphenylamine Dipropylene glycol methyl ether Diquat Endosulfan Ethanolamine Ethyl bromide Ethyl silicate Ethylene glycol monomethyl etheracetate Fthylidene norbornene Fenamide  Mafnium Hexachlorocyclopentadiene Hexachloroethane Hexachloronaphthalene Hexafluoroacetone 7-Hexanone Hydrogenated tarphenyls Hydroquinone Manganese cyclopentadienyl tricarbonyl	2-Methoxyethanol Methyl acrylonitrile Methyl Methyl cyclohexanol Methyl iodide Methylcyclopentadienyl manganese tricarb Molybdenum-solubles P-Nitroaniline Nitrogen trifluoride Nitroglycerin Octachloro naphthalene Oxygen difluoride Paraquat Pentaborane Pentachloronaphthalene Perchloryl fluoride Phenylphosphine Picric acid Pival  N-Propyl nitrate Propylene dichloride Pyridine Quinone Sodium azide Sulfuryl fluoride Tellurium Tetra methyl lead 1,1,2,2-Tetrachloro-1,2-Difluoroethane 1,1,1,2-Tetrachloro-2,2-Difluoroethane  1,1,2,2-Tetrachloroethane Tetrachloronaphthalene Tetraethyl lead Tetramtromethane Tetryl Thallium 1,2,4-Trichlorobenzene Trichloronaphthalene 1,2,3-Trichloropropane Trinitrotoluene  Triethoxycetyl phosphate Uranium-insoluble Uranium-soluble Vinyl bromide Vinylidene chloride Warfarin

## HIGH-RISK SUBSTANCES IDENTIFIED AS

## PRESENT DURING 2,271 INSPECTIONS

Substances	Idaho	Illinois	Massachusetts	Minnesota	Oregon	Vermont	Washington	Total
<b>Carcinogens:</b>								
Asbestos	-	26	23	10	3	28	20	110
Benzidine	-	-	-	-	1	-	-	1
MOCA (note a)	-	-	1	-	-	-	1	3
Vinyl chloride	3	11	14	7	2	5	4	46
Total	3	37	38	18	6	33	25	160
<b>Suspect carcinogens:</b>								
Arsenic & compounds	-	-	2	1	-	-	2	5
Asphalt	1	-	-	-	-	-	2	1
Benzene	-	16	3	6	1	1	-	27
Benzoyl peroxide	-	-	-	1	-	-	-	1
Beryllium	-	1	-	-	-	-	-	1
Cadmium	-	10	10	4	-	-	2	26
Cadmium oxide	-	-	-	-	-	2	-	2
Carbon black	-	4	3	-	1	-	-	8
Carbon tetrachloride	1	1	-	-	2	2	-	6
Chlorodiphenyl	-	-	-	-	1	-	-	1
Chloroform	-	1	-	1	-	-	-	2
Chromates	-	4	4	-	-	-	-	8
Chromic acid	2	22	4	5	2	-	3	38
Chromium	-	10	2	2	-	5	3	22
Coal tar pitch volatiles	-	1	2	-	-	-	-	3
Dimethyl sulfate	-	1	-	-	-	-	-	1
Iron oxide	5	33	10	18	9	2	4	81
Nickel-soluble compounds;								
Nickel-metal and insoluble compounds	-	12	7	7	1	-	-	27
Trichloroethylene	2	13	10	9	10	5	4	53
Wood dust	3	1	-	-	5	1	11	21
Zinc chromate	1	3	-	-	-	-	1	5
Total	15	133	57	54	32	18	30	339
<b>Other high-risk substances:</b>								
Antimony	-	5	8	-	-	-	-	13
Barium	-	1	-	-	-	-	-	1
Butoxyethanol	-	1	1	-	-	-	-	2
Chlorodiphenyl (42#)	-	-	-	-	2	-	-	2
Cobalt	-	2	1	1	2	2	-	8
Cyclohexanone	-	1	2	-	-	-	-	3
Diglycidyl ether	-	2	1	-	-	-	-	3
Dimethylformamide	-	-	1	-	-	-	-	1
Epichlorohydrin	-	2	1	-	-	-	-	3
2 Echoxyethanol	-	1	-	-	-	-	-	1
2 Ethoxyethylacetate	-	1	-	-	-	-	-	1
Ethylene glycol dinitrate	-	-	-	-	-	1	-	1
Ethylene oxide	-	2	-	-	1	-	-	3
Fluorides	1	9	5	2	-	-	2	19
Gasoline	1	1	-	-	1	-	-	3
Heptane	-	-	3	1	-	-	-	4
Hydrogen fluoride	2	2	-	1	-	1	-	6
Lead	5	56	44	22	9	14	6	156
Manganese	1	4	3	1	1	-	-	10
Mercury-alkyl compounds	-	4	-	2	-	2	3	11
Mercury-inorganic	-	-	-	-	-	-	-	-
Molybdenum-insoluble	-	1	-	-	-	-	-	1
Ozone	-	-	1	3	5	-	-	9
Perchloroethylene	-	3	3	10	-	-	16	32
Phenol	-	2	-	2	-	1	-	5
Phosphorus	-	-	-	-	-	1	-	1
Propylene glycol dinitrate	-	-	-	-	-	-	1	1
Propylene oxide	-	2	-	-	-	-	-	2
Rubber solvent	-	-	-	1	-	-	-	1
Selenium	-	1	-	-	-	-	-	1
Silver	-	8	2	3	-	2	2	17
Tin	-	14	5	-	-	-	-	19
Turpentine	-	-	-	1	-	1	-	2
1,2 Trichloroethane	-	2	5	5	2	3	-	17
Total	10	127	86	55	23	28	30	359
<b>Total</b>	<b>28</b>	<b>297</b>	<b>181</b>	<b>127</b>	<b>61</b>	<b>79</b>	<b>85</b>	<b>858</b>

a/MOCA is the trade name for the chemical 4,4'-Methylene-bis(2-chloroaniline).

HIGH-RISK SUBSTANCES WITHOUT  
ADEQUATE SAMPLING PROCEDURES

Carcinogens: Ethyleneimine

Suspected  
carcinogens: Aldrin  
Asphalt (Petroleum) Fumes  
Benzoyl Peroxide  
Butyl Chromate-Tert (as CRO3)  
Carbon Black  
Chlordane  
Coal Tar Pitch Volatiles  
DDT  
Diazomethane  
Dieldrin  
Dimethyl Sulfate  
Endrin  
Heptachlor  
Lead Arsenate (as PB)  
Lindane  
Nickel Carbonyl  
Rotenone

Chronic  
(cumulative)  
toxicity: ANTU (Alpha Naphthyl Thiourea)  
Carbaryl (Sevin)  
Carbon Disulfide  
Chlorinated Diphenyl Oxide  
Chlorodiphenyl (42%CL)  
Crag Herbicide (Sesone)  
Dichloroacetylene  
Diglycidyl Ether (DGE)  
Dinitro-O-Cresol  
Diphenylamine  
Endosulfan (Thiodan)  
Ethanolamine  
Ethyl Silicate  
Ethylene Glycol Dinitrate  
Ethylene Glycol Monomethyl Etheracetate  
Ethylene Oxide  
Hafnium dust (as HF)  
Hexachloroethane  
Hydroquinone  
Mercury (Alkyl Compounds)  
Mercury (inorganic)  
Methyl Cyclohexanol  
P-Nitroaniline  
Nitrogen Trifluoride

Chronic  
(cumulative)  
toxicity:

Nitroglycerin  
Oxygen Difluoride  
Paraquat  
Pentaborane  
perchloryl Fluoride  
Phosphorus (Yellow)  
Picric Acid  
Pival  
N-Propyl Nitrate  
Quinone  
Selenium Compounds (as SE)  
Sulfuryl Fluoride  
Tetra Methyl Lead (as PB)  
Tetraethyl Lead (as PB)  
Thallium (soluble Compds) (as TL)  
Tin (Organics) (as SN)  
Trinitrotoluene  
Triorthocresyl Phosphate  
Turpentine  
Uranium (Natural) Soluble  
Uranium (Natural) Insoluble  
Warfarin  
2-Aminopyridine  
Methyl Acrylonitrile

U.S. DEPARTMENT OF LABOR  
OFFICE OF THE ASSISTANT SECRETARY  
WASHINGTON, D.C. 20210



JANUARY 23, 1978

Mr. Gregory J. Ahart  
Director, Human Resources Division  
U. S. General Accounting Office  
Washington, D. C. 20548

Dear Mr. Ahart:

Enclosed, as requested, is the Department of Labor's  
response to the draft GAO report, "Sporadic Workplace  
Inspections for Lethal and Other Serious Health Hazards."

Sincerely,

ALFRED M. ZUCK  
Assistant Secretary for  
Administration and Management

Enclosure



**THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S  
RESPONSE TO THE DRAFT GAO REPORT, "SPORADIC WORKPLACE  
INSPECTIONS FOR LETHAL AND OTHER SERIOUS HEALTH HAZARDS"**

This General Accounting Office review of the Occupational Safety and Health Administration's (OSHA) health inspection effort focuses on the Agency's capability to locate and eradicate cancer-causing and other toxic substances in the Nation's workplace. The proliferation of hazardous substances in the workplace and their chronic adverse effects on human health have become of increasing concern to this Agency over the past several years. When the current Assistant Secretary for Occupational Safety and Health took office in March 1977, she brought a personal commitment to focus a larger share of the Agency's resources on high-risk workplace health hazards. Many of the criticisms made by GAO were noted and steps have been taken to improve OSHA's capability to confront serious workplace health hazards. The following response discusses corrective actions under way and those being planned to remedy the deficiencies cited by GAO.

In replying to this report each chapter's recommendations will be addressed under that chapter heading, though not necessarily in the order that the recommendations are presented.

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### Chapter 3--Basic Planning and Direction Needed

OSHA agrees that health inspection resources must be focused on high-risk health hazards and the Agency has taken several steps to improve its ability to identify and inspect workplaces where the most serious health hazards are found. A basic plan for programming health inspections such as GAO envisions, however, depends on the Agency's ability to compile accurate data on the location of hazards, the numbers of workers affected, and the relative severity of health risks.

OSHA is developing an experimental Health Inspection Planning Model to provide data that the Agency can use in deciding where to focus enforcement resources. The Model attempts to measure the exposure of employees to health hazards by using the National Institute for Occupational Safety and Health's (NIOSH) National Occupational Hazard Survey, the Department of Labor's Unemployment Insurance files, and OSHA's Classification of Health Violations (Chapter IX of the Industrial Hygiene Field Operations Manual). Information from these sources will be used to:

- o identify health hazards by industry;
- o estimate the number of employees exposed to each health hazard by industry; and
- o quantify the relative toxicity of known health hazards.

This is the basic framework for the Model; however, refinement of its components, such as optional weighting factors in considering employee exposure, is currently under consideration.

It should be noted that it is difficult to quantify the risk of exposure to different substances. Factors such as duration of exposure, level of exposure, the problem of acute versus chronic exposure, and the irreversibility of clinical effects of various substances must be considered. The possibility of a synergistic effect of exposure to a combination of substances further complicates the problem of quantifying exposure risk.

Once a ranking of the relative toxicity of known health hazards has been established, the Model will allow OSHA to locate these hazards by industry. Establishments within these industries can then be identified by State and by area office.

Present plans are to test the Model in the field during fiscal year 1978. It will be made available, on a trial basis, to area and regional directors and to State occupational safety and health agencies as a tool for allocating health compliance resources and prioritizing health inspections.

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Another experiment which may help to better focus health inspection resources is a prototype Occupational Hazard Analysis and Countermeasure Evaluation System for OSHA Compliance Program Planning and Program Management Control. This system will be tested in the foundry inspection program (formerly the National Emphasis Program). The system will collect recordable injury and illness data from employers when an inspection is made. Data on long-term or latent occupational illness are often not recorded, so data on employee exposure to known hazardous substances, as recorded on the OSHA Form 35 following an inspection, will be used to supplement the recordable injury and illness data collected from employers. The system will be developed and implemented under a one-year contract which will begin in fiscal year 1978.

The most effective use of health compliance resources is a major Agency concern and is closely related to the problem of health hazard identification and prioritization. OSHA is working to improve its health inspection capability by hiring more industrial hygienists (IH's) and by upgrading the training of existing Federal and State personnel. This should result in more frequent and higher quality health inspections.

A major problem in focusing health inspection efforts on high-hazard industries is the amount of time industrial hygienists must spend on other priorities. OSHA has recently issued new inspection priorities which will give regional and area offices greater authority in allocating their industrial hygienists' time, and that of other professional resources. This new authority, however, is subject to two broad national guidelines. First, the overall goal is to direct 95 percent of OSHA's programmed inspection effort to the industries with the most serious health and safety hazards, and the remainder to lower risk industries. Second, area offices must devote at least 70 percent of available professional staff activity to inspections or to compliance-related programs. Agency inspection priorities are listed below:

- o Unprogrammed inspection activities (in order of importance)--investigation of imminent danger complaints; investigation of fatalities/catastrophes; and investigation of other complaints.
- o Programmed inspection activities--e.g. high-hazard industries; special emphasis programs; and new standard implementation inspections.

Other compliance activities include programs such as voluntary compliance activities and labor liaison efforts; State program monitoring activities; and support of Federal agency safety and health activities.

One pressing priority for industrial hygienists is responding to employee complaints of health hazards. Until recently OSHA procedures required that an inspection be made in response to any complaint in which there appeared to be a valid safety and health hazard involved. Some IH's were spending all of their time responding to health complaints, and many of these complaints involved hazards that do not directly affect safety and health. However, a revision of the employee complaint procedure has recently been issued (Program Directive #200-69). This revised procedure allows the area director to contact the employer by letter when a nonformal complaint that does not present a serious hazard is received. The area director is allowed the discretion of deciding whether or not an inspection is necessary, and if an inspection is deemed unnecessary the area director can contact the employer by letter, requesting the employer to apprise him of action taken on the complaint.

The priority system described above will require area directors to seek additional resources when worker complaints exceed 30 percent of available inspection resources. Regional administrators can reassign personnel from other area offices within the region, or seek help, through the Director of the Office of Field Coordination and Experimental Programs in the national office, from other regional offices as circumstances require. This policy will allow the deployment of IH's in a timely and efficient manner to the geographic areas requiring their expertise.

One means of maximizing health inspection resources is the cross-training of compliance safety and health officers (CSHO's) so that more health hazards can be identified. Current OSHA regulations stipulate that CSHO's with training in the recognition and evaluation of health hazards collect health hazard information when making regular safety inspections, for referral to the IH. These CSHO's collect samples when they suspect a health hazard is present and make written notations of pertinent information relating to the health hazards encountered. The information is evaluated by the area director, with the help of the senior IH, and one of the following actions is taken:

1. a citation or citations may be issued based on the data collected by the CSHO;
2. the area director may direct a more complete health inspection by an IH;
3. the area director may direct the safety specialist to return to the worksite and collect additional samples;
4. the area director may decline to take action on the referral if no action is deemed necessary.

Thus the area director with the advice of the senior industrial hygienist makes the determination as to whether or not an inspection by an IH is warranted, based on the information provided by the CSHO. OSHA feels that the area director is best able to make these judgments.

The possibility of relieving IH's of routine tasks that can be performed by others is addressed to a degree in the preceding discussion regarding cross-training of CSHO's. Industrial hygienist trainees also relieve senior IH's of some of the routine tasks required in a health inspection. IH trainees undergo two years of training, including field work under the supervision of a senior IH. Part of that training is routine inspection preparation, such as preparing instruments for an inspection, weighing filters, etc. Thus, the sharing of health inspection tasks with IH trainees provides for a more efficient use of the skills of experienced IH's.

OSHA does not generally use industrial hygienists to inspect migrant labor camps. However, to assure the efficient use of scarce industrial hygienists' time, OSHA will include in the revision of its instructions for conducting migrant labor camp inspections a statement specifying that industrial hygienists should be used to conduct such inspections only when circumstances require their specialized expertise.

It should be noted that the GAO report identifies problems which are common to both the Federal enforcement program and to States which administer their own safety and health plans (18(b) States). While the 18(b) States have taken innovative measures in some instances, as a general rule their posture is emulative of the Federal program. Federal solutions to the problems described are developed first, and then usually adopted by the States. The details of this process are discussed under Chapter 4 of this response.

Discussion has so far centered on how to deal with known health hazards--"known" in the sense that a substance's toxic effects can be identified, measured, and a safe exposure level determined. New chemicals appear with increasing rapidity; their identification, location and regulation is a joint problem faced by the Environmental Protection Agency (EPA), OSHA, and other Federal agencies. The Toxic Substances Control Act is designed to identify and regulate both existing and new chemical substances in the workplace as well as in the environment as a whole, but the Act's implementation is in its earliest stages. However, an Interagency Regulatory Liaison Group has recently been formed to collectively examine processes for regulating chemicals which impact upon people and the environment. Member agencies are EPA, OSHA, the Food and Drug Administration and the Consumer Product Safety Commission. Interagency cooperation can potentially aid OSHA in the substantial task of analyzing and controlling toxic substances in the workplace.

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In addition, three States with approved 18(b) plans are now considering or already applying new approaches to toxic substances control. California requires that all employers using known carcinogens register with its State occupational safety and health agency. Virginia will soon require the registration of all chemicals used in the workplace and will follow that registration with notification by the State health department to the employer of the dangers involved in the use of these substances. Minnesota is considering its own system of registration of users of toxic substances and has a proposed rule nearing adoption. Any of these systems can be used in conjunction with inspection scheduling. Further, if this State level data were available to OSHA, it is conceivable that the data could provide a "cross-section" showing the types of hazardous substances used in key industries or processes.

OSHA has identified many high-risk substances which cannot be adequately sampled or analyzed. For example, 135 of the 400 standards considered for revision by the OSHA-NIOSH Standards Completion Project do not have adequate sampling and analyzing techniques. The National Institute for Occupational Safety and Health (NIOSH) is at present developing the technology to measure and analyze these substances. It should be understood that this is an ongoing effort: when substances in the workplace are found to be toxic, and as new chemical substances are introduced into the workplace, methods must be developed to measure their presence and evaluate their effects.

To improve existing sampling methods, OSHA has let several contracts for evaluating instruments and sampling techniques. Plans are also underway to add an analysis development group to the Salt Lake City Analytical Laboratory, and to perform instrument evaluation at OSHA's laboratory in Cincinnati.

The instrument evaluation group at the Cincinnati laboratory will also be given the responsibility for quality control and instrument specification testing. When these groups are in operation, OSHA will be better equipped to develop new sampling techniques.

Recognizing the restraints that lack of knowledge regarding toxic substances places on their measurement and control, the health compliance effort must focus inspections on high-risk health hazards. Feedback on the effectiveness of health inspections is a measurement of progress in that effort. Evaluation units in each of OSHA's ten regions monitor selected inspections, examining such areas as adequacy of sampling, hazard recognition, and appropriateness of abatement dates, to determine the effectiveness of State programs. There are three types of monitoring of a State's OSHA-approved enforcement procedures. An OSHA IH may accompany a State inspector on his inspection; an OSHA IH may make a spot check following a State inspection; or there

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is a review of State inspection case files. The results of this monitoring become part of an evaluation report sent to each State to provide information which the State can use to make adjustments in its program.

Formerly, a certain percentage of all State inspections were monitored. However, during the past year, new statistical sampling procedures for monitoring State inspections were sent to the field. These procedures, designed to improve the objectivity of the sample and the appropriateness of its size, assure that the monitoring of inspections will provide a more accurate picture of the overall State safety and health enforcement program. OSHA is now working to insure uniformity in presentation of these data in the semiannual evaluation reports that are sent to the national office. Federal health inspection data on citations and abatement can also be used to determine whether or not the employer abated a cited violation. These data provide a measure of the degree of an inspected employer's compliance with standards. More detail on workplace health inspections is presented in the following chapter.

#### Chapter 4--Can Workers Rely on Inspections for Protection?

In order to improve the quality and completeness of health inspections, OSHA has completed its Industrial Hygiene Field Operations Manual (IH Manual) and a new procedure for classification of health violations. This new procedure classifies substances according to their toxicity and their effect on the human body, and ranks the substances from most to least serious. Sufficient time has not elapsed for a comprehensive evaluation of these new directives. Prior to the implementation of the IH Manual, and during the time period GAO performed its study, GAO's findings regarding incomplete inspections were accurate, and may still be applicable to State Inspection Case Files. Omission of required information is clearly in violation of OSHA policy, however, and when discovered, the Agency will take corrective action.

The GAO report describes several cases where hazards were overlooked or not properly evaluated during an inspection. While this problem still persists to a degree, OSHA and State industrial hygienists' performance is monitored by on-site evaluations performed by the national office, regional offices and State program performance monitoring personnel. These programs are identifying weaknesses in performance and corrective actions are being taken.

The examples of inadequate inspections discovered by GAO during its survey of State occupational safety and health programs have been reported to OSHA regional administrators. These examples will be investigated and appropriate recommendations made to the States concerned.

GAO made some criticisms of State implementation of OSHA program changes in the area of occupational health. Under section 18 of the Occupational Safety and Health Act of 1970, States can assume responsibility for occupational safety and health protection as long as their standards and enforcement procedures are "at least as effective" in providing safe and healthful workplaces as those of Federal OSHA. Current OSHA procedures stipulate that when major policy changes or additions such as those in the IH Manual are adopted by the Federal program, the States have 30 days in which to inform OSHA regional offices of their intention regarding those program changes. States must describe their implementation of the program changes or submit plans for implementation. At present, while all timetables are subject to OSHA regional office approval, no specific time limit for accomplishing major policy changes is set for the States. However, under a regulation soon to be proposed, major program changes will be given a time frame of six months or less for implementation by the States.



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States may simply adopt verbatim program changes issued by OSHA or may develop their own "at least as effective" changes. In either case, OSHA approval is required. As of October 1977 five States had officially adopted the OSHA IH Manual pending OSHA approval. One State has had its adoption of the IH Manual approved, and two States are simply using the IH Manual without having officially adopted it. Seven States have promulgated their own IH Manual, pending OSHA approval, and the remaining ten States have not yet adopted the new procedures. Eventually all States will be required to adopt the IH Manual or develop one which is approved by OSHA.

GAO's recommendations concerning improvement of health inspection procedures and their documentation are clearly addressed in the new Industrial Hygiene Field Operations Manual. The IH Manual requires the identification and recording of all toxic substances found during workplace inspections. The Manual also requires that inspectors check for and record whether or not employers are in compliance with the standards for high-risk substances. All of this information must be entered in the case file as prescribed by the IH Manual. The IH Manual also requires that the IH remain at the workplace until all necessary samples are obtained. The IH must prepare a sampling schedule which lists potential chemical and physical hazards, the number of samples to be taken and the location of potential health hazards. The eight-hour time-weighted average required for sampling many suspected toxic substances often requires that the IH spend an entire day of his plant visit collecting samples. Records of all samples taken must be compiled.

The IH must record, during the walkthrough, information on engineering controls, use of protective devices, and other evidence to help in determining compliance with standards. At the closing conference, information on the occupational health program of the employer is gathered for evaluation. Components of the occupational health program which must be evaluated by the IH include the monitoring program, medical program, education and training program, recordkeeping, engineering controls, work practice and administrative controls, protective devices, procedures for regulated areas as may be required by certain standards, and emergency procedures if required. Thus specific information concerning the employer's compliance with standards is recorded in the case file required for each inspection and evaluated by the IH as part of the inspection report.

The Occupational Safety and Health Act of 1970 states that a violation shall be classified as serious "...if there is a substantial probability that death or serious physical harm could result from a violation..." existing in the workplace. Thus a violation must be classified as serious whenever it is reasonably predictable that a serious illness could result from the

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hazard under consideration. With regard to hazardous substances found in the workplace, OSHA has clarified its policy concerning classification of violations with the expectation that a substantial majority of violations involving carcinogens, suspect carcinogens and other high-risk substances will be classified as serious.

There are several types of violations which must be considered when hazardous substances are found in the workplace. Two major types raised by GAO are violations of standards prohibiting exposure to a substance above specified levels, and violations of the standard which specifies requirements for a personal protective equipment program for respiratory hazards (29 CFR 1910.134).

In the first case, that of exposure limits for toxic substances, the frequency and duration of exposure over time often must be considered in determining the type of illness which may occur. However, Chapter VIII of OSHA's Field Operations Manual indicates that these factors need not be considered for "substances known as cancer-causing." Thus even an infrequent or brief exposure to a carcinogen would properly be cited as serious under the standard covering that substance. The same would be true for many suspected carcinogens and other high-risk substances: however, since the degree of risk may vary, determinations for these substances must be made on a case-by-case basis. Chapter IX of the IH Manual provides additional detail regarding classification of toxic substances.

In the second case, the fact that respirators are worn in an area in which an air contaminant is at a serious level does not abrogate the requirement that failure to institute feasible engineering or administrative controls be cited as a serious violation. OSHA's classification policy in Chapter VIII of the Field Operations Manual makes clear that the presence of an employee in such an area establishes exposure to a serious hazard, whether or not personal protective equipment is worn. Sections of the Field Operations Manual and the IH Manual which are inconsistent with this policy will be revised.

OSHA has established in Chapter XII of the IH Manual specific guidelines for classifying violations of the standard governing respiratory protection programs. These guidelines provide that most types of violations of the standard will be cited as serious whenever the air contaminant concentration to which employees are exposed is serious. However, there are a few types of violations of the standard which are, by themselves, considered other than serious when the air contaminant concentration is serious.

GAO is correct in stating that OSHA has not established a written policy specifically concerned with classifying violations of requirements in standards for employee information and education, medical surveillance, and most safe work practices for carcinogens. Rather, compliance officers are expected

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to classify such violations on the basis of the general classification policy in Chapter VIII of the Field Operations Manual. OSHA recognizes, however, that further classification guidance may be needed and will consider including this guidance in its IH Manual. In fact, in the case of coke oven emissions, a program directive (300-10) accompanying the standard does provide all necessary requirements for classifying employee information and education, medical surveillance, and most safe work practices for carcinogens. This is one model for future directives to provide guidance for inspection procedures when a new standard is issued.

OSHA policy requires that a followup inspection be made to assure the abatement of all serious violations for which there is no other assurance that abatement has occurred. (Other assurances might include abatement at the time of the initial inspection or movement of a mobile operation to another location.) Industrial hygienists are expected to take air samples during followup inspections whenever there is any doubt that abatement of a cited violation has been achieved. OSHA will continue to monitor area office performance to insure that all required followup inspections are made.

GAO described several cases where no violations were cited during inspections because of lack of applicable standards. GAO suggested that the general duty clause be applied to protect workers from potentially serious hazards not covered by a standard, and OSHA agrees. This is OSHA's practice when exposures exist, there are recognized hazards likely to cause death or serious physical harm to employees, and no standard has been promulgated. A further requirement is that documentation describing the hazards has been published and could have been utilized by the employer in question. The use of the general duty clause is examined during on-site evaluations by the national office, regional offices and State program performance monitoring personnel.

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Chapter 5--Additional Data Needed to Evaluate Efforts to Deal With High-Risk Hazards

As discussed under Chapters 3 and 4 of this response, OSHA is undertaking studies to provide data which will enable the Agency to better focus inspections on high-risk health hazards. The prioritization of health inspections based on a ranking of occupational health hazards is an essential first step in making a meaningful evaluation of the degree to which those hazards have been addressed by workplace inspections.

As mentioned earlier, OSHA will use EPA data collected under the provisions of the Toxic Substances Control Act to better identify chemical substances used in various industries. Data submitted by manufacturers will provide production volume at each plant site for every chemical substance. However, these data will not be reported to EPA until February 1978, and thus will not be available to OSHA for a considerable period of time after that date.

Currently, the chief health inspection data sources for OSHA's management information system are the Safety and Health Report (OSHA-1) form and the OSHA-35 form, "Inspection Test/Sample Report." Data on hazardous substances found during workplace inspections are recorded on the OSHA-35 and provide a means by which the effectiveness of OSHA's health inspections can be evaluated. The OSHA-35 provides for recording of the use of pesticides and carcinogens when observations or wipe tests are made as well as when workplace samples are taken. It contains entries for citations issued from which results of inspections can be ascertained, and also provides entries for the number of employees affected by the substances. The OSHA-35 is currently being revised to provide more detailed information regarding workplace health hazards. A revised form will be implemented in fiscal year 1978.

To aid in the planning and evaluation of area and regional inspection programs, each OSHA area director prepares a quarterly Safety and Health Program Plan. This Plan outlines inspection goals for that period, including the number of high-hazard health inspections projected. Actual inspection data from the OSHA-35 and other sources can then be compared with this Plan to determine whether inspection goals have been met.

Similarly, States with State plans prepare a target health hazards list, broken down by Standard Industrial Classification (SIC) groupings, and direct a given percentage of general schedule inspections to those high-hazard groups. A quarterly report of State inspection activity is submitted to OSHA, showing by SIC code the types of inspections made, the number of employees affected by the inspection, and the results of the inspection in terms of violations and proposed penalties. The quarterly report is then compared with the tar-

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get health hazards list to determine if inspection goals for high-hazard industries were met.

OSHA acknowledges that its data collection and program evaluation efforts require substantial improvement. Various means for measuring health inspection effectiveness are now under consideration.

This draft GAO report has addressed issues which are of vital concern to this Agency. New and better policies are being evolved in the difficult area of occupational health and the Agency will continue to improve its capability for protecting the safety and health of America's working people.

PRINCIPAL LABOR OFFICIALS RESPONSIBLE FOR  
ACTIVITIES DISCUSSED IN THIS REPORT

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
<b>SECRETARY OF LABOR:</b>		
F. Ray Marshall	Jan. 1977	Present
W. J. Usery, Jr.	Feb. 1976	Jan. 1977
John T. Dunlop	Mar. 1975	Jan. 1976
Peter J. Brennan	Feb. 1973	Mar. 1975
James D. Hodgson	July 1970	Feb. '973
 <b>ASSISTANT SECRETARY OF LABOR FOR OCCUPATIONAL SAFETY AND HEALTH:</b>		
Eula Bingham	Mar. 1977	Present
Vacant	Jan. 1977	Mar. 1977
Morton Corn	Dec. 1975	Jan. 1977
Vacant	July 1975	Dec. 1975
John H. Stender	Apr. 1973	July 1975
Vacant	Jan. 1973	Apr. 1973
George C. Guenther	Apr. 1971	Jan. 1973

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