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ABSTRACT

This document provides teachers with sources of information about the nature, hazards, detection, and control of asbestos. Because many school buildings include asbestos-containing materials, teachers and other school personnel must be aware of the potential dangers to students and to themselves and take steps to have asbestos hazards contained or eliminated. In addition, they should be able to enlighten students about the dangers of asbestos when the need arises. The references listed were located through an extensive search of the literature and publications of concerned organizations and agencies. Along with citations of federal laws and regulations and of documents on asbestos, a list of organizations and agencies offering services and information is presented. Also included is a brief guide on how to reduce exposure to asbestos in the schools. (Author/IRT)

SELECTED REFERENCES ON ASBESTOS: ITS NATURE, HAZARDS, DETECTION, AND CONTROL

INFORMATION

on instruction and professional development from the National Education Association
1201 Sixteenth Street, N.W., Washington, D.C. 20036

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SELECTED REFERENCES ON ASBESTOS: ITS NATURE, HAZARDS, DETECTION, AND CONTROL

Asbestos is a family of fibrous minerals widely used in building and other construction industries (e.g., for strengthening cement and plastics, in insulation and sound absorption materials) and in the manufacture of many products. A potential health risk arises when asbestos fibers break free. If inhaled, they may lodge and remain in the lungs for a long period of time. Scientific studies show that persons heavily exposed to asbestos run a high risk of lung disease, including cancer.

The purpose of this document is to provide teachers with sources of information about the nature, hazards, detection, and control of asbestos. Because many school buildings include asbestos-containing materials, teachers and other school personnel must be aware of the potential dangers to students and to themselves and take steps to have asbestos hazards contained or eliminated. In addition, they should be able to enlighten students about the dangers of asbestos when the need arises in the instructional program. The references listed here were located through an extensive search of the literature and the publications of concerned organizations and agencies.

Contents

I. Federal Law, Rules, and Regulations Pertaining to Asbestos in Schools

Recognition of the potential health hazards from exposure to asbestos fibers and increasing use of asbestos in many products over the past several decades prompted the Congress to enact Public Law 96-270. The Asbestos School Hazard Detection and Control Act of 1980. The Department of Education (ED) has issued rules and regulations to implement PL 96-270. The U. S. Environmental Protection Agency (EPA) has issued proposed rules under the Toxic Substances Control Act which are closely coordinated with the ED rules.

U. S. 96th Congress, 2nd Session, Senate, Committee on Labor and Human Resources. Asbestos School Hazard Detection and Control Act of 1980. Senate Report No. 96-710, May 15, 1980. The report provides the legislative history on PL 96-270 and describes its provisions. "The purpose of this bill is to establish a program to help schools identify and control the exposure of school children and school personnel to potentially debilitating asbestos fibers in the ambient air. The bill provides for a two-tiered program of Federal assistance to schools -- first, through grants to local educational agencies, state educational agencies, and nonpublic schools to detect potential hazards in schools, and second, through loans to school districts and nonpublic schools to control detected hazards. The Department of Education would administer both components of the program.

U. S. Department of Education. "Asbestos Detection and Control: Local Educational Agencies; Asbestos Detection and State Plan: State Educational Agencies." Federal Register, Vol. 45, No. 182, Wednesday, September 17, 1980. Part V, pp. 61950-64. Proposed rules and regulations to implement the Asbestos School Hazard Detection and Control Act of 1980.

_____. "Asbestos Detection and Control: Local Educational Agencies; Asbestos Detection and State Plan: State Educational Agencies." Federal Register, Vol. 46, No 11, Friday, January 16, 1981. pp. 4536-58. Final rules and regulations to implement the Asbestos School Hazard Detection and Control Act of 1980. The regulations establish procedures to make available (a) federal grants to assist local educational agencies (LEAs) and state educational agencies (SEAs) in the identification of asbestos hazards in school buildings, and (b) federal interest-free loans to LEAs to correct those hazards.

U. S. Environmental Protection Agency. "Friable Asbestos-Containing Materials in Schools: Proposed Identification and Notification." Federal Register, Vol. 45, No. 182, Wednesday, September 17, 1980. Part VI, pp. 61966-97. These EPA proposed rules and regulations, issued under the Toxic Substances Control Act, would require elementary/secondary school officials to inspect all school buildings for friable materials, have samples of friable materials analyzed for asbestos content, warn all employees and parent groups of the existence of asbestos materials, and provide instructions on how to reduce/avoid any health risks associated with asbestos and how to keep records of all actions taken to comply with the regulations. The EPA proposed rules were closely coordinated with those of the Education Department on PL 96-270. They include "A Guide for Reducing Asbestos Exposure" and an optional record-keeping form for certifying "Inspections for Friable Asbestos-Containing Materials." See Attachment A.

II. Selected and Annotated Bibliography on Asbestos: Its Nature, Hazards, Detection, and Control

Agram, L. The Cancer Connection and What We Can Do About It. Boston: Houghton-Mifflin Co., 1977. 220 pp. The author, an attorney, draws attention to the fact that there have been recent increases in occupation-related cancers. He recommends a federally instituted cancer prevention agency consisting of scientists and attorneys. Its objectives would be to initiate and carry out programs that would protect the public from environmental carcinogens.

Asbestos Factbook. Willow Grove, Pa.: Asbestos (P.O. Box 471, Willow Grove 19090), 1970. 27 pp. The chemical and physical properties of asbestos, its production, consumption, mining locations, industrial grades from various sources, and application are concisely described with text and tables.

Becklake, M.R. "Asbestos-Related Diseases of the Lung and Other Organs: Their Epidemiology and Implications for Clinical Practice." American Review of Respiratory Disease 114: 187-227; July 1976. The characteristics of asbestos and methods of direct and indirect human exposure are comprehensively reviewed, along with the biological effects of inhaled or ingested asbestos particles. The epidemiology, pathology, diagnosis, and clinical management of asbestos-related benign and malignant diseases are also described.

Bogovskii, P.A., and Davis, W., editors. Biological Effects of Asbestos. Proceedings of a working conference held at the International Agency for Research on Cancer, Lyon, France, October 2-6, 1972. Albany, N.Y.: Q Corporation (49 Sheridan Ave., Albany 12210), 1973. 346 pp. Presentations at the conference covered assessments of methods used in the studies of the biological effects of asbestos; criteria for environmental data and bases for threshold limit values; the asbestos burden in lung and pleura; clinical data in mesothelioma; etiological mechanisms; and asbestosis in relation to the duration of exposure, occupation, dose, and fiber type.

Brodeur, P. Asbestos and Enzymes. New York: Ballantine Books, 1972. 146 pp. $1.25. The history, nature, and environmental health hazards of asbestos are described in a nontechnical manner for workers and the general public. A large portion of the text discusses the research done by Dr. Irving J. Selikoff, a medical specialist on environmental and asbestos health hazards.

Castleman, B.I., and Fritsch, A.J. Asbestos and You. Washington, D.C.: Citizens Energy Project (1413 K Street, N.W., DC 20005), 1975. 64 pp. The broad problem of asbestos contamination and its pervasiveness in urban, work, and other environments is reviewed with respect to known effects on health, particularly cancer. Action by the general public is advocated for protection against, and prevention of, asbestos pollution. An extensive bibliography, appendixes of statistical information, and tables listing the uses of asbestos are included.

Coulson, D.M., and others. Survey of Manual Methods of Measurements of Asbestos, Beryllium, Lead, Cadmium, Selenium, and Mercury in Stationary Source Emissions. Environment Monitoring Series. Research Triangle Park, N.C.: EPA Library (MD-35, Research Triangle Park 27711), 1973. 159 pp. Free (order No. EPA-650/4-74-015). Selected methods used to analyze asbestos and other elements in air emissions are described, as well as the results of analysis of baghouse exhausts. A detailed description of asbestos assay methods, chiefly electron microscopy, is appended.

Elmes, P.C. "Current Information on the Health Risk of Asbestos." Royal Society of Health Journal 96: 248-52; December 1976. The medical aspects of asbestos-induced lung disease are reviewed, and the physical properties of asbestos that are related to induction, etiology, and pathology are described. Those factors that are suspected or known to contribute to the development of asbestos-related diseases are reviewed, including the character of asbestos particles and the asbestos manufacturing process, dosage, the mechanisms of lung filtration of airborne asbestos, and the host's pathological reaction to entrapped particles.

Enterline, P.E. "Estimating Health Risks in Studies of the Health Effects of Asbestos." American Review of Respiratory Disease 113: 175-80; February 1976. Methodologic difficulties that may be encountered in estimating asbestos-associated cancer risks are discussed. While most studies seem to agree on the existence of an excessive cancer risk, it is determined that there is considerable disagreement as to the magnitude of this risk. Of eleven epidemiologic studies, estimates of relative risk for respiratory cancer ranged from 1.2 to 9.2. These variations are reviewed.

_____. "Pitfalls in Epidemiological Research: An Examination of the Asbestos Literature." Journal of Occupational Medicine 18: 150-56; May 1976. Wide variations in eleven studies of the relative risks of death for asbestos-exposed workers are described and recommendations made of further well-designed studies.

Felton, J.S. "Health Education--A Responsibility of the Occupational Health Professional." Journal of Occupational Medicine 19: 346-50; May 1977. In discussing the responsibility of the occupational health professional to provide general health education, the author cites extensive experience with asbestos workers, pointing out that the tragedy of workers with advanced lung disease can be somewhat averted by employee health education programs.

Fowler, R.A. Asbestos Dust: Everyone's Problem. Berkeley, Calif.: Western Institute for Occupational/Environmental Sciences (2001 Dwight Way, Berkeley 94704), 1978. 35 pp. $10. The problem of asbestos pollution and related diseases is explained in detail, with the aim of convincing workers to protect themselves against hazardous exposure to the mineral. Topics covered include: history and common uses of asbestos; who is exposed, and how; ways to control exposure; recommendations for medical surveillance; treatment for asbestos-related diseases;

and current regulations and government agencies concerned with occupational health in general and asbestos exposure in particular. A list of pertinent asbestos facts is appended.

Fowler, R.A., and Polakoff, P.L. Plain Talk About Asbestos. Berkeley, Calif.: Western Institute for Occupational/Environmental Sciences (2001 Dwight Way, Berkeley 94704), 1978. 13 pp. 50¢. Using a rhetorical question-and-answer format, the booklet provides a brief history of the origins and uses of asbestos, followed by a review of the carcinogenic risks and legal rights of asbestos workers. A list of sources for further information on asbestos-related diseases is also included.

Greenberg, S.D., and others. "Tyler Asbestos Workers Program." Annals of the New York Academy of Sciences 271: 353-64; 1976. Based on results of the Tyler Program's screening and surveillance techniques, the authors conclude that sputum cytopathology is an excellent, simple, painless, and inexpensive means for early detection of malignant and premalignant lesions of the lung.

Haley, T.J. "Asbestos: A Reassessment of the Overall Problem." Journal of Pharmaceutical Sciences 64: 1435-49; No. 9, 1975. The chemical, industrial, hygenic, animal, and human toxicologic and carcinogenic aspects of the asbestosis problem are reviewed. Various asbestos fiber types are analytically identified using different measuring instruments. Biochemical, histological, and histochemical aspects are described. Unsuspected exposure to asbestos fibers in mining, asbestos friction materials, asbestos house insulation, pipe insulation, textile production, and various nonoccupational routes are also discussed and evaluated.

Harwood, C.F., and Ase, P.K. Field Testing of Emission Controls for Asbestos Manufacturing Waste Piles. Environmental Protection Technology Series. Research Triangle Park, N.C.: EPA Library (MD-35, Research Triangle Park 27711), May 1977. 135 pp. Free (order No. EPA-600/2-77-098). Primary sources of asbestos dust emissions are identified and various methods of controlling short-term and long-term emissions (e.g., from dump areas) are reviewed for cost and antipollution effectiveness. The report includes tables, diagrams, and photographs.

Holstein, E.C. "Ask the Doctors--Bystander Exposure." Painters and Allied Trades Journal, December 1977. A physician explains the occupational health risks for workers who do not themselves use dangerous substances but who absorb them from co-workers who are using them. Examples are cited of various types of workers who develop asbestosis because they work in the vicinity of insulators and pipefitters, particularly in shipyards.

Horvits, J.S. "Asbestos and Its Environmental Impact." Environmental Affairs 3: 145-65; No. 1, 1974. The relationship between exposure to asbestos and diseases such as asbestosis, lung cancer, gastrointestinal cancer, and mesothelioma is explained. The legal and regulatory measures that have been taken to reduce these health hazards are reviewed, with reference to the Occupational Safety and Health Act, the Clean Air Act, and standards regulating the presence of asbestos in food, drink, drugs, and water.

International Agency for Research on Cancer. Asbestos. IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Vol. 14. Albany, N.Y.: Q Corporation (49 Sheridan Ave., Albany 12210), 1977. 106 pp. The carcinogenic risk of asbestos, based on all available data published or accepted for publication up to December 1976, is evaluated. Discussions of six fibrous silicates of asbestos cover chemical and physical data, production, use, occurrence, and detection of asbestos and biological data relevant to the evaluation of carcinogenic risk to man.

Kelly, R.T. "Asbestos--Health Hazards in Perspective: Constructional Uses." Royal Society of Health Journal 9: 246-48; December 1976. The scientific adviser to the building division of a large city government discusses methods for safer application of asbestos in future construction of homes and public buildings and for rendering previously installed asbestos safe for building occupants. New building materials blending asbestos with novel fillers are also described.

Kuschner, M., and others. "A Study of the Problem of Asbestos in Water." Journal of American Water Works Association, September 1974. pp. 1-22. (Available from University Microfilms, 300 N. Zeeb Rd., Ann Arbor, MI 48106. $6 first copy.) After investigating the possible health risk of drinking water contaminated by asbestos-cement pipes, the study committee concluded that the risk from such potable water systems approaches zero. There is no evidence that ingested (as opposed to inhaled) asbestos can be definitely associated with gastrointestinal cancer, but establishment of standards for measuring waterborne asbestos fiber fragments is suggested, particularly in asbestos-cement pipes, and further epidemiological and pathogenic studies are recommended.

Lehman, Phyllis, editor. Cancer and the Worker. New York: New York Academy of Sciences (2 East 63rd Street), 1977. 77 pp. $5. Designed to inform workers, plant managers, and union leaders about what is and is not known about occupational cancer and the issues involved in its control. Industrial substances which scientists believe cause cancer in the human body, including asbestos, are discussed.

Levine, R.J., editor. Asbestos: An Informational Resource. Silver Spring, Md.: Division of Cancer Control and Rehabilitation, National Cancer Institute (Blair Building, Rm. 723, 8300 Colesville Rd., Silver Spring 20910), May 1978. 105 pp. The physical and chemical properties, production, consumption, occupational and nonoccupational human exposure, and health effects of asbestos are presented from the perspective of cancer risk. Methods of controlling asbestos exposure through engineering design and other physical restraints, public education, and medical management are discussed. Appendixes list smoking cessation programs, educational materials, research studies, federal regulations, and references.

"MSSM" Pinpoints Health Hazards Among Painters and Allied Tradesmen." Painters and Allied Trades Journal, April 1977. The findings of the Mount Sinai School of Medicine's investigation into the health hazards associated with painting are

summarized. Chief among these findings is the exposure of painters to asbestos dust from spackling compounds. New standards, safety procedures, and asbestos substitutes are recommended. A summary table shows how asbestos produces disease almost exclusively in the respiratory system, though it is sometimes associated with digestive tract cancers. The table also lists other compounds used by the paint industry and their health-associated risks.

Mueller, P.K., and others. Asbestos Fiber Atlas. Environmental Protection Technology Series. Research Triangle Park, N.C.: EPA Library (MD-35, Research Triangle Park 27711), April 1975. 50 pp. Free (order No. EPA-650-2-75-036). Electron diffraction patterns and transmission microscope pictures of various types of asbestos are shown to help analysts in their identification of airborne asbestos samples. A glossary lists types of asbestos, approximate chemical composition, and gross appearance.

National Institute for Occupational Safety and Health. Manual of Analytical Methods. Vol. 1, Second edition. Washington, D.C.: Superintendent of Documents, U. S. Government Printing Office, 1977. 807 pp. $8.75 (order No. 017-033-00267-3). Technical details of the equipment and procedures are described for collecting, mounting, and counting asbestos fibers on cellulose ester membrane filters in personally collected air samples. The purpose of the method is to determine an employee's index of exposure to airborne asbestos fibers. The method is primarily a personal monitoring technique, but it can be used for area monitoring. Other analytical methods are included in the manual.

_____. Occupational Exposure to Asbestos: Criteria for a Recommended Standard. Washington, D.C.: Superintendent of Documents, U. S. Government Printing Office, 1972. $2.10 (order No. 1733-00009-3). A recommended more stringent standard for occupational exposure to asbestos is described, similar to one instituted by the British government in 1969. Also recommended are new methods for calculating safe levels of airborne asbestos fibers.

_____. Revised Recommended Asbestos Standard. Washington, D.C.: Superintendent of Documents, U. S. Government Printing Office, December 1976. 96 pp. $2.30 (order No. 017-033-00229-1). The revised standard covers the biological effects of asbestos, environmental data, and the history and background for development of the standard.

National Research Council, Committee on Public Information in the Prevention of Occupational Cancer. Informing Workers and Employers About Occupational Cancer: Final Report. Springfield, Va.: National Technical Information Service, U.S. Department of Commerce (5285 Port Royal Rd., Springfield 22161), 1977. 42 pp. $4.50 (order No. PB-269599). The report discusses the issues to be covered, including the broad concepts of carcinogenesis, types of cancer with which they are associated, conditions of exposure, and safeguards against exposure. Problem areas and target audiences are defined.

"New for Consumers: Asbestos Ban." (News release.) Washington, D.C.: Consumer Information Center, General Services Administration, 1978. 1 p. The recent ban on asbestos-containing consumer plaster-patching compounds and nonburning artificial fireplace logs, embers, and ash is described. Specific information on how to dispose of these products is provided in a separate fact sheet.

Nicholson, W.J.; Rohl, A.N.; and Weisman, I. Asbestos Contamination of the Air in Public Buildings. Research Triangle Park, N.C.: EPA Library (MD-35, Research Triangle Park 27711), October 1975. 59 pp. Free (order No. EPA-450/3-76-004). In various cities, air samples were taken outside of and within 19 buildings that incorporated asbestos in their structures or as fire insulation. Air contamination was noted where fibrous, dry-spray asbestos was used, but not where the asbestos was incorporated into cement. The report recommends future monitoring guidelines and procedures for removal of dangerous asbestos sources in existing buildings and during demolition.

Nowak, G.D. Asbestos Toxicity--January 1970 Through July 1977. Bethesda, Md.: Reference Department, National Library of Medicine (8600 Rockville Pike, Bethesda 20014), 1977. 47 pp. Free (order No. 77-14). The National Library of Medicine literature search includes 698 citations to articles dealing with the biological effects, risks, and hazards of exposure to asbestos in the industrial, municipal, home, and experimental environments. Emphasis is on asbestos and asbestos-related diseases, particularly respiratory effects and cancer in humans exposed to asbestos fibers and dust. Also included are other adverse effects; poisoning; toxicologic studies in humans and experimental animals; methods of analysis of asbestos in air, water, soil, food, beverages, household products, and other known or suspected sources; techniques for controlling the pollutant; minimum standards for exposure; and occupational and public health measures to prevent the asbestos-related disorders.

Occupational Health: Exposure to Asbestos. Washington, D.C.: Department of the Air Force, Headquarters U.S. Air Force, 1977. 6 pp. Free (order No. AFOSH Standard 161-4). This standard covers occupational exposure to asbestos and includes an interim message addressing smoking and lung cancer in asbestos workers. The application and scope of the standard are delineated, asbestos terms are explained, and requirements are outlined, including permissible exposure limits, exposure determination and measurement, hygiene facilities and practices, sanitation and housekeeping, caution signs and labels, medical examinations, record keeping, and employee information and training.

Pattnaik, A., and Meakin, J.D. Development of an Instrumental Monitoring Method for Measurement of Asbestos Concentration in or Near Sources. Environmental Protection Technology Series. Springfield, Va.: National Technical Information Service, U.S. Department of Commerce (5285 Port Royal Rd., Springfield 22161), June 1973. 47 pp. $5.25 (order No. PB-22641). The report describes the development of a methodology for determining the amount and type of airborne asbestos particles near sources of asbestos emissions as well as in ambient air samples. The principle of the method is a scanning electron microscope with microprobe and image analysis capabilities.

Rajhans, G.S. "Here's an Update on Asbestos." Occupational Health and Safety 46: 38-43; November-December 1977. Efforts to standardize safety levels of the two main types of asbestos--chrysotile and crocidolite--in the working environment are reviewed chronologically. Methods of asbestos fiber measurements and calculation of exposure (dose vs. duration) are discussed, and safety standards in different countries are described. Highlights of the U.S. Environmental Protection Agency standards (1975) deal mainly with the handling of asbestos and products that contain it.

"Recommended Practices for Handling Asbestos Fiber." Arlington, Va.: Asbestos Information Association/North America (1745 Jefferson Davis Highway, Arlington 22202). 4 pp. 10¢. Properties of asbestos are briefly defined and concise instructions given on how to handle the storage, clean-up, transfer, transportation, and disposal of fibrous unprocessed asbestos. Attention is drawn to Occupational Safety and Health Administration and Environmental Protection Agency regulations and the availability of protective equipment. The leaflet also lists other publications and posters available from the Asbestos Information Association.

Richmond, J.B. "Physician Advisory--Health Effects of Asbestos." (Memorandum) Washington, D.C.: Office of the Surgeon General, Public Health Service, U.S. Department of Health, Education, and Welfare, April 25, 1978. 3 pp. Free. The advisory notice is designed to help physicians deal with inquiries about asbestos exposure from patients and the public. Asbestos-related diseases are reviewed, and clinical management procedures suggested include obtaining a detailed, lifetime exposure history, emphasizing smoking cessation, and screening those exposed to asbestos for cancer symptoms.

Selikoff, I.J., and Hammond, E.C. "Asbestos-Associated Disease in United States Shipyards." CA--Cancer Journal for Clinicians 28: 87-99; March-April 1978. The principal health hazards of asbestos and the clinical latency of asbestos-associated cancer are summarized. Early and recent studies of asbestos-related diseases in U.S. and foreign shipyard workers are reviewed and illustrated by statistical tables. Recommendations by the authors for ameliorating past mistakes include dissemination of information about and avoidance of additional asbestos exposure, medical surveillance programs, and further assessment of the potential for shipyard asbestos disease.

Selikoff, I.J.; Nicholson, W.J.; and Langer, A.M. "Asbestos Air Pollution." Archives of Environmental Health 25: 1-13; July 1972. The presence of asbestos in the atmosphere, particularly in major cities, is demonstrated by the finding of asbestos fibers in lung tissue of urban and rural dwellers who were not occupationally exposed to asbestos. The health threat of this widely disseminated air pollutant is discussed, and populations exposed to asbestos pollution are defined. Possible means of controlling pollution are also enumerated.

Sheinbaum, M. "Recommended Safe Practices for Spraying Asbestos." Industrial Hygiene Review 13: 3-5; January 1970. Spray applications of wetted mixtures of

asbestos and other widely used sound and fireproofing insulation materials result in the release of high concentrations of airborne fibers. Recommendations are made for safeguarding the health of those who may be exposed to these respirable airborne fibers where asbestos must be sprayed.

"Standards for the Control of Carcinogens in the Workplace." Journal of Occupational Medicine 18: 81-84; February 1976. Possible approaches to the problem of establishing standards of carcinogen control are reviewed, including control strategies for environmental asbestos levels. Among the methods discussed for the general control of carcinogens are outright banning, use of permit systems, substitution of safer alternatives, and use of best available technology.

"Standards for Exposure to Asbestos Dust." Federal Register, Vol. 37, No. 110, June 7, 1972. pp. 11318-22. The standards cover acceptable limits of airborne asbestos in the work environment, methods for controlling release of fibers into the air, atmospheric monitoring, health examinations for asbestos workers, labeling of asbestos containers, record keeping, and waste disposal.

Sullivan, R.J., and Athanassiadis, Y.C. Preliminary Air Pollution Survey of Asbestos: A Literature Review. Research Triangle Park, N.C.: EPA Library (MD-35, Research Triangle Park 27711), October 1969. 93 pp. Free (order No. APTD 69-27). The current status of efforts to measure asbestos air pollution levels near asbestos emiting sources and in cities is examined. While noting that air sampling methods are inadequate, the survey goes on to identify possible environmental asbestos sources and their effects on humans. Appendixes contain general information on asbestos.

"Threat of Asbestos Disease Widens." Medical World News 17: 41+; October 18, 1976. The pervasive nature of exposure to asbestos and its effects on the health of people who do not actually handle the mineral are reviewed. Such sources of exposure as dislodged asbestos fibers in office fireproofing material, wall sidings spackled with asbestos fibers and compounds, asbestos from brake linings, and asbestos in drinking water are discussed and related to the incidence of lung abnormalities in city dwellers. Legislative efforts to curb dumping of asbestos into the environment are also described.

U. S. Consumer Product Safety Commission. "Respirable Free-Form Asbestos." Federal Register, Vol. 42, No. 146, 1977. pp. 38782-91. Diseases related to asbestos exposure are reviewed, with reference to occupational, intermittent, and consumer exposure.

U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, National Cancer Institute. Asbestos Exposure--A Desk Reference for Communications. Bethesda, Md.: National Cancer Institute, 1978. 16 pp. Free (order No. DHEW(NIH) 78-1622). The table of contents of this question-and-answer booklet lists the following sections: Risks in the Workplace, Nature of Asbestos, Disease Recognition, Control of Exposure, Treatment, Federal Efforts, Other Sources of Information, Quick Guide to the Answers, and Suggested References.

_____. Asbestos Exposure: What It Means, What To Do. Bethesda, Md.: National Cancer Institute, n.d. 12 pp. Free (order No. DHEW(NIH) 78-1594). Discusses the nature of asbestos, its uses, the problem for workers, the risks, and how workers can protect themselves. Facts about asbestos exposure are discussed. Sources for further information are listed.

U.S. Environmental Protection Agency. Background Information on Development of National Emission Standards for Hazardous Air Pollutants: Asbestos, Beryllium, and Mercury. Research Triangle Park, N.C.: EPA Library (MD-35, Research Triangle Park 27711), March 1973. 97 pp. Free (order No. APTD-1503). General aspects of all three pollutants, such as applicability of standards and source sampling or analysis, are followed by separate considerations of asbestos, beryllium, and mercury. Health effects, standards development, evaluation of comments, and environmental and economic impacts are discussed.

_____. Background Information on National Emission Standards for Hazardous Air Pollutants--Proposed Amendments to Standards for Asbestos and Mercury. Research Triangle Park, N.C.: EPA Library (MD-35, Research Triangle Park 27711), 1974. 141 pp. Free (order No. EPA 450/2-74-009A). The basis for the proposed asbestos and mercuty standards is discussed, including changes that have been made to improve the uniformity of enforcement and the workability of the standards. The amendments cover use of asbestos in the manufacture of shotgun shells and the operation of asphalt concrete plants, demolition or renovation of buildings containing asbestos products, asbestos fabrication, and disposal of asbestos wastes. Appendixes discuss air cleaning methods and stabilization of waste piles.

_____. Background Information--Proposed National Emission Standards for Hazardous Air Pollutants: Asbestos, Beryllium, Mercury. Research Triangle Park, N.C.: EPA Library (MD-35, Research Triangle Park 27711), December 1971. 28 pp. Free (order No. APTD-0753). The derivation of the proposed national emission standards for asbestos, beryllium, and mercury is traced; for each of the pollutants, information is given on the effects on health, the nature of the air pollution problem, the development of proposed standards, and the expected economic impact of the standards.

U.S. Environmental Protection Agency, Air Pollution Technical Information Center. Asbestos and Air Pollution: An Annotated Bibliography. Research Triangle Park, N.C.: EPA Library (MD-35, Research Triangle Park 27711), February 1971. 101 pp. Free (order No. AP-82). One hundred sixty annotated references address the general aspects of asbestos, pollution, emission sources, assay and sampling, methods for pollution control, effects on human health, and basic science and technology. Title, subject, author, and geographic location indexes are appended.

U.S. Environmental Protection Agency, Office of Toxic Substances. Asbestos-Containing Materials in School Buildings: A Guidance Document. Parts 1 and 2. Washington, D. C.: Environmental Protection Agency, 1979. (To order, call toll-free 800-424-9065; in DC call 554-1404.) The EPA established this guidance program to inform state and local school officials of possible health hazards

associated with asbestos. Part 1 outlines steps that schools can take to conduct an asbestos control program. Part 2 deals with the detection and monitoring, removal or encapsulation, and disposal of asbestos-containing building materials. Measures available to protect workers and building occupants are presented, based on field measurement and theoretical considerations. Sampling procedures are discussed so that users of this document can take an active role in determining whether protective action is needed and, if so, how best to protect the public and the environment.

_____. School Asbestos Program--Questions and Answers. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, April 1979. 12 pp. Questions and answers designed to assist state health and education officials, school administrators, parents, teachers, students, and others interested in understanding this EPA program.

Weidman, J. "What Is Asbestos?" Job Safety and Health 5: 17-20; September 1977. Factors that should be considered by researchers and government regulatory agencies when addressing asbestos-related health problems are discussed at a multidisciplinary conference. Since no agreement is reached on a definition of the group of hydrated, fibrous silicates collectively called asbestos, further investigation is suggested. Information on current asbestos experiments is also presented.

Weis, I , and Theodos, P.A. "Pleuropulmonary Disease Among Asbestos Workers in Relation to Smoking and Type of Exposure." Journal of Occupational Medicine 20: 341-45; May 1978. Describes a study of asbestos workers which explored the relationship of pulmonary disease and pleural thickening to type of asbestos, age, duration of exposure, and smoking habits.

What You Should Know About Asbestos and Health. Arlington, Va.: Asbestos Information Association/North America (1745 Jefferson Davis Highway, Arlington 22202). 11 pp. Free. Workers are advised of potential health risks from exposure to asbestos dust when safety regulations are ignored, either at the plant or in field operations such as construction and demolition. The brochure describes the health hazards, the employer's obligation to protect employees, and what workers can do to protect their own health and that of their families. A smoking ban is among the twelve safety regulations described.

Wright, W. J. "Asbestosis--The Symptoms and Course of the Disease." Nursing Times 72: 685-86; May 1976. The symptoms and etiology of asbestosis are described, as well as diagnosis, treatment, and possible complications. Several suggestions for treatment and further research are also briefly discussed.

Zielhuis, R. L., editor. Public Health Risks of Exposure to Asbestos. Report of a Working Group of Experts, Prepared for the Commission of the European Communities. Elmsford, N.Y.: Pergamon Press, 1977. 149 pp. $15. The report describes types, physical composition, and uses of asbestos; examines possibilities of exposure; reviews sampling methods and levels of exposure; describes biological effects; and reviews occupational health risks and exposure limits. The health risks of environmental exposure are evaluated and requisite follow-up studies are described.

Audiovisual

The American Way of Cancer. 57 min. 16mm film, sound, color. CBS Publishing Group, 383 Madison Ave., New York, NY 10017. The film examines cancer-causing agents, including asbestos, arsenic, pesticides, and certain food additives. It also takes a look at the hiding places of carcinogenic substances in the daily life of a family in Cincinnati, Ohio; in the smelters of a copper plant in Tacoma, Washington; and in a chemical plant in Salem County, New Jersey.

Bellow, B., and Eselson, N. Asbestos: Fighting a Killer. 30 min. slide-tape presentation, 137 color slides 2"x2", with audiocassette, script, and carousel slide tray. AFL-CIO, CLC, Citizenship-Legislative Department, 1126 16th St., N.W., Washington, DC 20036. $125. Designed to educate workers about the dangers and consequences of asbestos exposure and explain federal regulations aimed at protecting workers and their families.

Posters

Asbestos: Health Hints for the Workplace. Six posters, each 15"x23", color. Arlington, Va.: Asbestos Information Association/North America (1745 Jefferson Davis Highway, Arlington 22202). This poster series urges prevention of asbestos-related health hazards by vacuuming dust spills, using respirators, not smoking, immediately repairing broken bags, changing clothing at work, and reporting unsafe working conditions promptly.

Recommended Practices for Handling Asbestos Fiber. Poster, 11"x14", color. Arlington, Va.: Asbestos Information Association/North America (1745 Jefferson Davis Highway, Arlington 22202). General precautions for working with asbestos and procedures for unloading, storing, and disposing of waste material are briefly summarized.

III. Sources of Service and Information (Federal, State, Other)

U. S. Environmental Protection Agency

1. EPA Regional Offices. The Environmental Protection Agency has ten regional asbestos offices around the country to coordinate the EPA School Asbestos Program with the states. Each Regional Asbestos Coordinator is available to meet with state and local officials in his/her region to discuss the asbestos material problem and to answer questions about the EPA school program. See Attachment B.

2. EPA Toll-Free Numbers. Copies of the EPA guidance package, survey forms, and other information on the EPA School Asbestos Program are available by calling 800-424-9065. (In the Washington, DC area, call 554-1404.) Information on sampling and analysis is available by calling 800-334-8571, extension 6892.

State Asbestos Program Contacts

Many states have programs or are developing programs to control asbestos materials in schools and other buildings. The names of the Asbestos Program Contacts for the respective states are available on the EPA toll-free information number: 800-424-9065.

The EPA Regional Asbestos Coordinators (Attachment B) may also be contacted for the names of State Asbestos Program Agencies. School officials should check with the state agency before beginning a school asbestos control program. States that already have an asbestos program may want schools to follow certain procedures for inspecting, sampling and analysis, and corrective action.

U. S. Consumer Product Safety Commission

Toll-Free Numbers. The Consumer Product Safety Commission operates a toll-free information number for questions about consumer products that contain asbestos. Call 800-638-8326. (In Alaska, Hawaii, Puerto Rico, and Virgin Islands, call 800-638-8333. In Maryland, call 800-492-8363.)

U. S. Department of Health and Human Services

1. The National Institute for Occupational Safety and Health (NIOSH) can provide assistance on selection of approved respirators and answer questions on occupational safety and health. NIOSH Regional Consultants are listed in Attachment C.

2. The Regional Health Administrators listed in Attachment D can provide information on the health problems associated with asbestos exposure.

Western Institute for Occupational/Environmental Sciences
2001 Dwight Way, Berkeley, CA 94794

The Institute conducts a research and education program supported by organized labor, industry, and community agencies. Concerned physicians conduct clinical research and worker health surveys, provide consultant services, and develop multimedia educational programs to identify and control toxic industrial substances, including asbestos and pesticides.

Excerpt from: U.S. Environmental Protection Agency. "Friable Asbestos-Containing Materials in Schools: Proposed Identification and Notification." Federal Register, Vol. 45, No. 182, Wednesday, September 17, 1980.

A GUIDE FOR REDUCING ASBESTOS EXPOSURE

Purpose

Your school building contains materials which contain asbestos and may release fibers into the air. Breathing asbestos fibers is dangerous. This fact sheet tells how to reduce exposure to asbestos fibers. Please read it carefully.

Protecting Yourself from Asbestos

Some of the friable building materials in your school contain asbestos. Friable asbestos-containing materials crumble easily and release fibers into the air. Breathing these fibers may cause cancer and other diseases. The more asbestos you breathe, the greater your chances of getting disease.

Find out from your supervisor where these friable asbestos-containing materials are in your building. Do not touch or disturb them unless you have to. If you must handle an asbestos-containing material, first lightly spray it with water. Wet asbestos-containing materials will not release as many fibers.

Even if friable asbestos-containing materials are not disturbed they may release asbestos fibers, which will fall slowly to the floor. If you are cleaning in areas which contain these materials, do not use a broom; it will stir the fibers into the air. Do not use a vacuum cleaner unless it is equipped with a High Efficiency Particulate Absolute filter. The fibers are so small they can pass through an ordinary vacuum cleaner and out into the room.

When cleaning in areas which contain friable asbestos-containing materials, use dampened mops and dustcloths. Dampened mops and dustcloths will hold the fibers much better than dry mops and dustcloths, and will reduce the number of fibers put back into the air. It is best to use mops with disposable heads and to throw away the mop head after use. Otherwise, fibers will be released as the mop dries. Use either lightly dampened mops or cloths or a vacuum with a High Efficiency Particulate Absolute filter to clean areas where wet mopping can't be used (such as carpeting or hardwood floors).

Clean tables and chairs in the area, with damp cloths. Do not dust them with brushes or with dry cloths, and do not vacuum them. After you use the cloths, put them in a plastic bag while they are still wet and dispose of them properly.

A list of Important Points to Remember

1. Do not handle or disturb friable asbestos-containing materials unless necessary.

2. If you must handle asbestos-containing materials, wet them first.

3. If you must disturb asbestos (for example, to repair a light), see your supervisor before starting work. Then:

   a. Place a plastic dropcloth below the work area.

   b. Spray asbestos-containing material with water before you disturb it.

   c. Make sure that only those persons who are necessary for the job are in the area.

   d. Put all the asbestos you remove into a heavy plastic bag. Seal the bag and discard it.

   e. After the job, clean all the ladders and tools you used with a wet cloth.

   f. Roll up the dropcloth carefully and put it in a plastic bag. Discard the bag.

   g. Clean the floor below the work area with a wet mop.

   h. Discard the mop head and the cloth used to clean the ladders while they are still wet.

4. If you must disturb or remove large sections of asbestos-containing material, see your supervisor before you begin. The National Institute for Occupational Safety and Health recommends that a respirator approved for toxic dusts be worn during such work.

INSPECTIONS FOR FRIABLE ASBESTOS-CONTAINING MATERIALS

1. Please provide the following information about the local educational agency:

   Name_____
   City_____ County_____
   State_____ Zip Code_____

   Fill in the following information about the schools under the authority of this local educational agency:

2. The number of schools which have been inspected for friable materials in accordance with Section 763.3 of Volume 40 of the Code of Federal Regulations. [ ]

3. The number of schools where friable materials are present.

   If the answer to question 3 is none, disregard questions 4-7 and go on to the certification. Otherwise, fill in the following information about the schools enumerated in question 3.

4. The number of schools in which all friable materials have been sampled and analyzed in accordance with Section 763.4 and Section 763.5 of Volume 40 of the Code of Federal Regulations. [ ]

5. The number of schools with friable material(s) that contain(s) asbestos. [ ]

   If the answer to question 5 is none, disregard questions 6-7 and go on to the certification. Otherwise, fill in the following information about the schools enumerated in question 5.

6. The total area in square feet of all friable asbestos-containing materials found in these schools [ ]

7. The total number of school employees who regularly work in schools where friable asbestos-containing materials are present. [ ]

Certification:

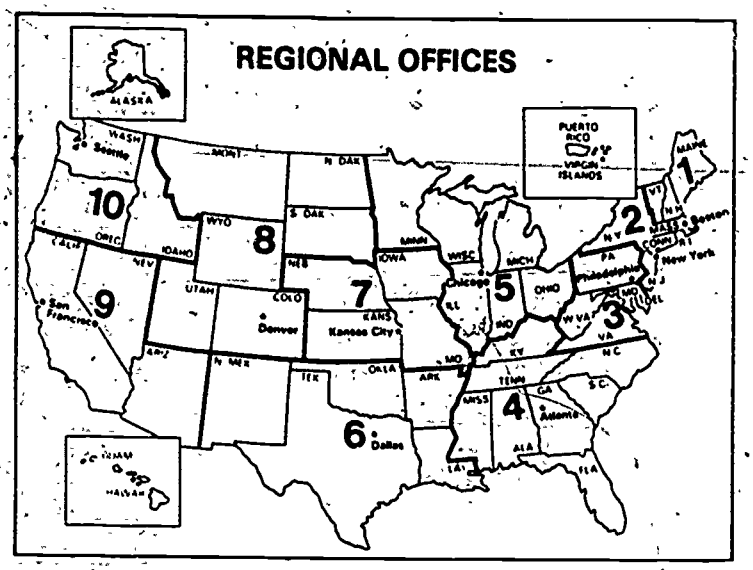
Please read and sign below the following statement:

I hereby certify that this local educational agency has complied with the EPA regulation 40 CFR §763.1-§763.10, "Asbestos-Containing Materials in Schools: Identification and Notification," and that the information on this form is, to the best of my knowledge, true and complete.

Signed_____
Name_____
Title_____
Date_____

Additional forms can be obtained by calling 800-424-9065 (554-1404 in Wash., D.C. area).

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGIONAL ASBESTOS COORDINATORS



Region 1
Mr. Paul Heffernan
Asbestos Coordinator
Air & Hazardous Materials Div.
Pest. & Toxic Substances Br.
EPA Region I
JFK Federal Bldg.
Boston, MA 02203
(617) 223-0585

Region 2
Mr. Marcus Kantz
Asbestos Coordinator
EPA Region II
Room 802
26 Federal Plaza
New York, NY 10007
(212) 264-9538

Region 3
Mr. Fran Dougherty
Asbestos Coordinator
EPA Region III
Curtis Building
Sixth and Walnut Streets
Philadelphia, PA 19106
(215) 597-8683

Region 4
Mr. Dwight Brown
Asbestos Coordinator
EPA Region IV
345 Courtland Street
Atlanta, GA 30308
(404) 881-3864

Region 5
Dr. Lyman Condie
Asbestos Coordinator
EPA Region V
230 South Dearborn Street
Chicago, IL 60604
(312) 353-2291

Toll-free numbers
Illinois: 800-972-3170
Indiana, Michigan,
Minnesota, Ohio
Wisconsin: 800-621-3191

Region 6
Dr. Norman Dyer
Asbestos Coordinator
EPA Region VI
First International Bldg.
1201 Elm Street
Dallas, TX 75270
(214) 767-2734

Region 7
Mr. Wolfgang Brandner
Asbestos Coordinator
EPA Region VII
324 East 11th Street
Room 1500
Kansas City, MO 64106
(816) 374-3036

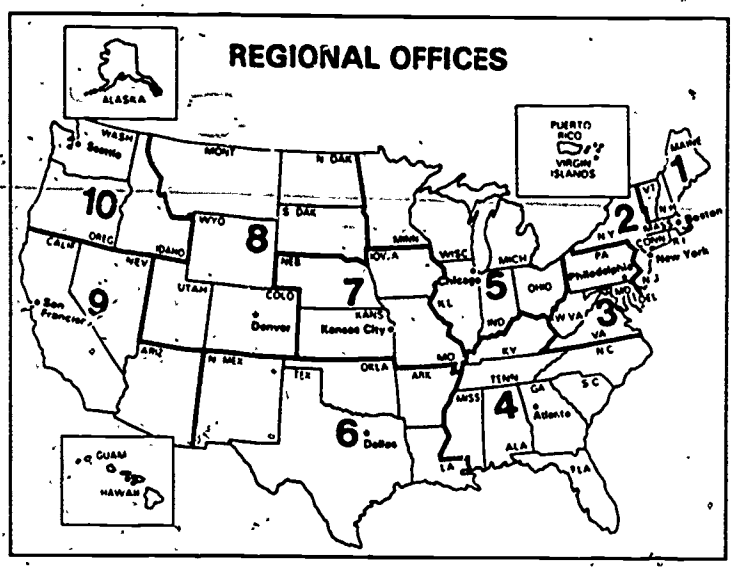
Toll-Free Action Line
(Leave name and number.
ask to have your call
returned)
Missouri: 800-892-3837
Iowa, Nebraska, Kansas:
800-821-3714

Region 8
Mr. Ralph Larsen
Asbestos Coordinator
EPA Region VIII
1860 Lincoln Street
Denver, CO 80295
(303) 837-3926

Region 9
Mr. John Yim
Asbestos Coordinator
EPA Region IX
215 Fremont Street
San Francisco, CA 94105
(415) 556-3352

Region 10
Ms. Margo Partridge
Asbestos Coordinator
EPA Region X
1200 Sixth Avenue
Seattle, WA 98101
(206) 442-5560

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
REGIONAL OFFICES



Region 1
Wes Straub
Regional Consultant, NIOSH
DHEW, Region I
Gov't Center (JFK Fed. Bldg.)
Boston, Massachusetts 02203
(617) 223-6668

Region 2
Mary L. Brown, R.N.
Regional Consultant, NIOSH
DHEW, Region II—Fed. Bldg.
26 Federal Plaza
New York, New York 10007
(212) 264-2485

Region 3
William E. Shoemaker
Regional Consultant, NIOSH
DHEW, Region III
P.O. Box 13716
Philadelphia, Pennsylvania 19101
(215) 596-6716

Region 4
Paul Roper
Regional Consultant, NIOSH
DHEW, Region IV, Div. of
Preventive Health Services,
101 Marietta Tower/Suite 502
Atlanta, Georgia 30303
(404) 221-2396

Region 5
Richard Kramkowski
Regional Consultant, NIOSH
DHEW, Region V
300 South Wacker Drive, 33rd Fl.
Chicago, Illinois 60606
(312) 886-3881

Region 6
George L. Pettigrew
Regional Consultant, NIOSH
DHEW, Region VI
1200 Main Tower Bldg., Rm. 1700-A
Dallas, Texas 75202
(214) 767-3916

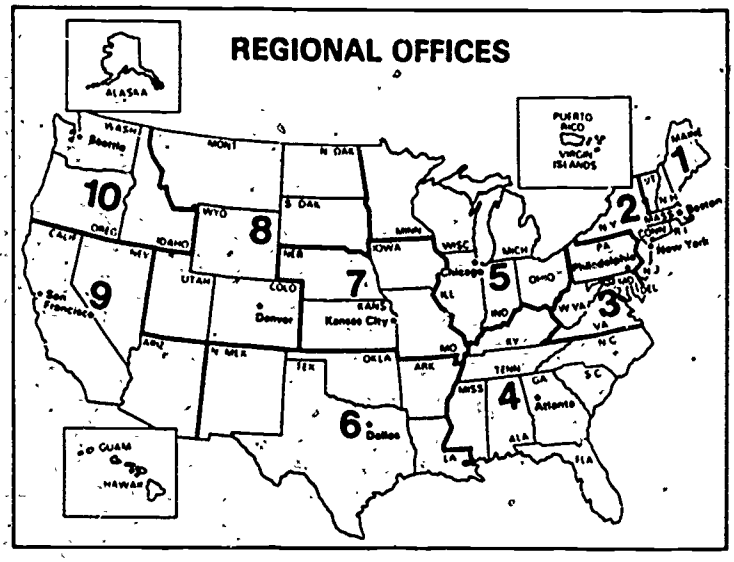
Region 7
Ralph Bicknell
Regional Consultant, NIOSH
DHEW, Region VII
601 East 12th Street
Kansas City, Missouri 64106
(816) 374-5332

Region 8
Stanley J. Reno
Regional Consultant, NIOSH
DHEW/PHS/PREVENTION—Region VIII
11037 Federal Building
Denver, Colorado 80294
(303) 837-3979

Region 9
Mel Okawa
Regional Consultant, NIOSH
DHEW, Region IX
50 United Nations Plaza
San Francisco, California 94102
(415) 556-3781

Region 10
Walter E. Ruch, Ph.D.
Regional Consultant, NIOSH
DHEW, Region X
1321 Second Ave. (Arcade Bldg.)
Seattle, Washington 98101
(206) 442-0530

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
REGIONAL HEALTH ADMINISTRATORS



Region 1
Edward J. Montminy
Regional Health Admin.
(Acting)
DHEW, Region I
Gov't Center (JFK Fed. Bldg.)
Boston, Massachusetts 02203
(617) 223-6827

Region 2
Nicholas H. Galluzzi, M.D.
Regional Health Admin.
DHEW, Region II—Fed. Bldg.
26 Federal Plaza
New York, New York 10007
(212) 264-2560

Region 3
H. McDonald Rimple, M.D.
Regional Health Admin.
DHEW, Region III
P.O. Box 13716
Philadelphia, PA 19101
(215) 569-6637

Region 4
George A. Reich, M.D.
Regional Health Admin.
DHEW, Region IV
Suite 107
101 Marietta Tower
Atlanta, GA 30303
(404) 221-2316

Region 5
E. Frank Ellis, M.D.
Regional Health Admin.
DHEW, Region V
300 South Wacker Drive
Chicago, IL 60606
(312) 353-1385

Region 6
Floyd A. Norman, M.D.
Regional Health Admin.
DHEW, Region VI
1200 Main Tower Building
Dallas, Texas 75202
(214) 655-3879

Region 7
Holman R. Wherritt, M.D.
Regional Health Admin.
DHEW, Region VII
601 East 12th Street
Kansas City, MO 64106
(816) 374-3291

Region 8
Hilary H. Connor, M.D.
Regional Health Admin.
DHEW, Region VIII
11037 Federal Building
Denver, Colorado 80294
(303) 837-4461

Region 9
Sheridan L. Weinstein, M.D.
Regional Health Admin.
DHEW, Region IX
50 United Nations Plaza
San Francisco, CA 94102
(415) 556-5810

Region 10
David W. Johnson, M.D.
Regional Health Admin.
DHEW, Region X
1321 2nd Ave./Arcade Bldg.
Seattle, WA 98101
(206) 442-0430