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PRIVILEGED & CONFIDENTIAL
DRAFT: June 22, 1984

BEFORE THE ENVIRONMENTAL PROTECTION AGENCY

TESTIMONY OF ROBERT N. SAWYER, M.D.

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I. INTRODUCTION.

I sincerely appreciate this opportunity to comment on EPA's response to asbestos-containing materials in schools and other buildings, and possibly to contribute to improved efforts in reducing asbestos exposures.

II. CONCERN.

I am seriously concerned that EPA will react to the present SEIU petition by extending the concepts and policies as exist in current regulations, guidance materials, and other documents to buildings other than schools without significant changes in the existing programs.

Such an extension would be, at this time, a serious error. EPA should not consider expanding its activities on asbestos in buildings until certain deficiencies in the existing program have been rectified. These deficiencies have unfortunately caused:

(1) fear and anxiety that in most cases is unwarranted;

(2) expenditure of significant resources in unnecessary abatement activity, most commonly the unnecessary removal of asbestos-bearing materials;

(3) these removals, under current conditions, are causing unnecessary and unwarranted asbestos exposures to both abatement workers and building users; and

(4) these unnecessary exposures caused by removal can result in adverse health effects, including malignancies.

III. SOURCES OF INFORMATION.

Information categories to describe the status of the current EPA program should include:

(1) the scope of asbestos use in schools and the type of asbestos involved;

(2) types and condition of applications in schools;

(3) actions taken to date by local school administrators;

(4) community reactions;

(5) costs of control measures; and

(6) post-control asbestos levels and other indices of the safety and effectiveness of removal and other control alternatives.

It is difficult to even discuss the present EPA program since there is yet no reliable official source of information on the status of the program in schools. The basis of my information, therefore, is from sources other than EPA. In my own research and consulting, I have accumulated information on many of these issues. This began with a study in 1972 of asbestos contamination within Yale University buildings, particularly the School of Art and Architecture. This

research has continued with publications and contributions in the literature on the specific subject of asbestos in schools. This includes a recent paper on airborne contamination in removal projects where methods outlined in the EPA Guidance Document have been utilized. In both research and consultation activities I have had numerous personal communications with representatives of local school administrations (LEA), geographically widespread consulting experience, and contacts with the legal community, contractors, architects, asbestos removal workers, occupational physicians, and research colleagues.

IV. SUMMARY OF INFORMATION.

From these sources of information, there has evolved a picture of inappropriate reactions to the presence of asbestos-bearing materials in schools. This overreaction has often resulted in unnecessary abatement activity including, most significantly, removal operations. This situation seems to have worsened rapidly in recent months. The process seems to begin when the notification required by regulation, or a subsequent attempt at enforcement by press release has caused unnecessary and inappropriate anxiety and concern over what is in reality a negligible risk. This anxiety, coupled with certain elements of misinformation can lead to hasty decisions and unnecessary, poorly controlled, material removal.

The decision whether to remove asbestos-bearing materials is in the hands of highly stressed and poorly prepared local school administrators. Often such officials must rely on contractors or consultants who may have self-serving interests in the outcome, or who have only recent reputation and undocumented expertise in this area. Or, the LEA may have to turn to Regional federal officials who may suffer from the same lack of information, but whose primary response may be a directive to compel rapid compliance by publicizing the problem. In these situations efforts that began with the intent to reduce exposures have instead:

(1) Converted a situation of highly questionable risk to that of certain and well-documented hazards to the involved abatement workers; and

(2) In some cases caused contamination of school structures and grounds that have placed children, teachers and other school personnel at totally unncessary risk of exposure. Such building user exposures can continue with repeated cycles of contamination by reentrainment of settled dust and debris within the structure.

V. SCOPE OF THE PROBLEM.

The regulation and control of exposures to asbestos in schools presents a unique and challenging problem. The difficulties associated with the administration of such a preventive effort on a national scale are significant. It

is indeed difficult to provide constant and responsible regulation in a situation that involves at least the following:

(1) intermittent and often unmeasurable levels of a microparticulate contaminant;

(2) risk models with severe limitations at low dose levels;

(3) potentially great anxiety and fear;

(4) lucrative abatement contracts; and

(5) increasing litigation that promises recovery of costs.

Great care, understanding and wisdom are badly needed. However, while a comprehensive and well-controlled approach is certainly indicated in handling this situation, present programs have generated great (and generally unwarranted) anxiety, and have produced guidelines that can be termed inadequate at best, and in some cases even hazardous.

The net result of notification of a potential carcinogen in the proximity of schoolchildren, without the balancing effects of understanding of the low exposure levels and comprehensive guidance on control alternatives, has been the stampeding of local school administrators into inappropriate actions that, in some cases, have resulted in a chaotic situation that can increase the hazard presented by asbestos-bearing products.

Apparently, EPA has assumed that local school administrators would have the information, resources, and capability

to react to such stress in a manner that would effectively eliminate exposure risk. This has not been the case.

VI. SPECIFIC PROBLEM AREAS.

A. Information and Communication

The appropriate administration of such a complex problem requires competent information and feedback of data at the local level on problem characterization and scope, material type and application, and other factors that could affect contamination. The characterization of asbestos-bearing materials in structures is a difficult task, but necessary for contamination evaluation, administrative decision, and control planning. Without accurate representation of the situation any response is likely to be misguided and may often actually exacerbate the risk.

The format of reporting that is currently employed in 40 C.F.R. Part 763 is inadequate to the task, and is prone to provide misinformation rather than definitive descriptions that would facilitate effective control. An example of an essentially ubiquitous asbestos-bearing material type is thermal insulation. In our years of experience in evaluating structures, nothing less than a four-by-four matrix (with 16 potential entries) is capable of presenting useful information on surveys and analysis of thermal insulation. Such information is the minimum necessary to provide data adequate

for problem definition and competent decisions for control. 40 C.F.R. Part 763 does not even distinguish between thermal insulation and surface treatments, much less provide a description of thermal insulation amount, type, and condition. Decisions on control requirements are thus presently dependent upon data that, as directed by regulatory instructions, have been reduced to a level of essentially no effective information.

Further, the present system provides only a qualitative evaluation performed by individuals who are not trained to perform such a task. EPA presently provides no methodology to produce quantitative data for definition or evaluation of contamination or hazard potential within a structure, or for comparisons among different buildings. Such quantitative evaluations have repeatedly proven effective in providing numerical characterizations for communication, data collection, guidance in contamination control requirements, priority ranking for control action, and allocation of resources. When conducted by trained individuals, this quantitative evaluation is reliable and essential to a rational response to the problem of asbestos-bearing materials in schools. Such quantitative estimation has proven valuable in problem definition, and essential to rational response, when used in New York City by the Board of Education in school buildings, and the Department of Personnel in other buildings used by city employees.

B. Evaluation of Contamination Potential

Currently, there exists a common misconception or generalization that the discovery of asbestos-bearing construction products automatically indicates serious contamination and exposures in a school building. Early publicized descriptions of contamination within structures, such as that of the Yale Art and Architecture building, are now recognized as uncommon situations. These involved low density, accessible, and severly damaged asbestos materials that created an unequivocable contamination problem. In reality, situations comparable to these undisputed problems have been rare. In most typical situations, the asbestos material in buildings does not resemble surface treatments such as found in the Yale study, and it is not clear that significant numbers of fibers are being released or that any meaningful risk is present. The analysis from the recent report of the Ontario Royal Commission, for example, reinforces this concept.

Contamination models, however, including rating systems have demonstrated value. Yet efforts to refine these evaluation models appear to have ceased. As a result, guidance in evaluation of contamination potential is lacking even at basic levels.

Improved models for visual inspection of buildings in order to assess hazard are essential to a reasonable response to asbestos in schools. In its recommendations, the Ontario Royal Commission report provides a starting point for the development of such evaluation programs. As they stress, however, any such evaluation must be conducted by experienced personnel in order to have any expectation of reliability.

C. Evaluation of Risk from Contamination

Although the present risk from asbestos exposures in schools in most instances is only poorly understood, precipitous and massive removal operations have occurred nonetheless. Existing estimates of risk are poorly understood and commonly misquoted. The assumptions, limitations and possible misinterpretations of risk models should be better understood, but this is a difficult task for local school administrators.

Unfortunately the evaluation of human risk from asbestos in schools is now probably more dependent upon the opinions of vocal individuals reported in the media than upon EPA guidance materials. The logic that does exist in EPA documents is being unheeded by decision makers, because EPA has erroneously assumed that local school administrators have the information and understanding to interpret risk analyses. Until the "single fiber will kill" mythology is dispelled and put into perspective, unnecessary and unreasonable

response actions are inevitable. It is essential that EPA place the risk from asbestos in schools into a reasonable perspective.

The use of risk assessment models is, of course, necessary and appropriate for the development of policy and regulations. However, it is essential that the shortcomings of such risk assessment models be understood by those developing and implementing such policies. Local school officials need to understand that the predicted risk is an upper level conservative estimate that approximates a hypothetical maximum risk, not hard evidence of actual risk.

D. Control Methods

The pressures generated by the present EPA program have created a demand for immediate action. This has automatically meant wholesale removal of asbestos-bearing materials in too many cases.

It has been repeatedly documented since 1975 that removal presents an unequivocable exposure risk to involved personnel. In contrast to the nonexistent or negligible exposure of typical building occupants, removal operations are certain to disturb asbestos-bearing materials and release significant numbers of fibers. While precautions can and must be taken, removal is always potentially hazardous.

Notwithstanding this risk, decisions on abatement are currently being made without the benefit of quantitative

supporting data, without information on existing contamination potential and without knowledge of hazards associated with removal. From my experience, a better understanding of actual risk, and the hazards of removal, would often counsel against taking such action.

The present lack of guidance for selecting abatement methodologies is a commonly heard complaint among local school officials. The net effect of many of the existing influences upon such local officials will be the erroneous conclusion that abatement by removal is the most desirable or the only desirable control methodology, no matter what the type, application, or condition of the asbestos-bearing material.

E. Exposure Risk in Removal Operations

The present situation presents a problem even more critical than the basic error in selection of removal as a control methodology. That error would possibly be tolerable if the losses were confined to time and financial resources. However, the surge in demand for removals greatly reduces the probability that the local school administration will obtain a competent contractor, experienced workers, knowledgeable architectural advice, and a safe removal operation. There is a limited supply of such qualified personnel, and demand has already exceeded the available supply. In addition,

the supply is already contaminated with irresponsible contractors and "experts" of dubious worth. Further increases in demand for removal will only worsen this situation.

The potential for adverse health effects in such a setting are many magnitudes greater in most cases than if the material had simply been left alone. Unqualified contractors and untrained workers are more likely to aggravate the risk than to correct it. In the present environment of anxiety and haste, unnecessary removals are poorly-controlled removals. In these cases, a situation of highly questionable or dubious risk is replaced by one that is certain.

Based on my observations, the EPA program, under present conditions, will cause more adverse health effects, including malignancies, than it is preventing.

F. Management of Asbestos-Bearing Materials

Management is an administrative and procedural system to prevent all unnecessary material disturbances, and control any necessary or unexpected disturbances. Although mentioned and briefly described in EPA guidance documents, control by management is seldom utilized by local school administrators who have relied on official guidance. EPA has neither encouraged nor provided adequate information on this valuable control methodology.

A basic principle of medicine is "first, do no harm." In contrast to removal, the management of asbestos-bearing materials will not only satisfy this rule, but in most situations is highly effective in preventing contamination. It is cost-effective and avoids the high and definite risk involved with material removal. In cases where removal will eventually be necessary, material management can provide effective interim control.

VII. SPECIFIC RECOMMENDATIONS.

EPA should continue efforts to develop a program that will, in an effective manner, provide control of asbestos-bearing materials in buildings to minimize exposures. More specifically:

A. EPA should impose a moratorium upon removal actions until such time as the Agency is able to provide the following functions for each local school administrator seeking response action:

1. Hazard evaluation. When asbestos is present, it must be determined whether it presents a significant enough potential or actual hazard to invoke control methodologies. The above guidelines are essential to this process.
2. Responsible guidance on abatement actions.
3. Contract specifications that are exact and comprehensive for use whenever asbestos removal and contamination control are employed.

4. Standards for approval of bidding contractors, including mandatory training of each and every worker who will be employed on each and every abatement project.

5. Standards to assure the protection of the involved abatement workers by coordination through regulation and contract specification items with federal and state occupational safety and health officials.

6. Standards to assure that contamination control in the building during and following removal is adequate.

B. EPA should provide a system to gather and evaluate meaningful information on present conditions in schools. This must include an appropriate architectural method to characterize and describe the asbestos-bearing materials.

C. EPA should develop clear and firm classifications of asbestos-bearing materials in schools. These classifications (such as soundproofing, friable fireproofing, thermal insulation, acoustical plaster, pipe insulation, and equipment lagging) bear a significant relationship to contamination potential. The relationship between material type, application and condition; contamination potential; and need of control methods should be clearly defined and explained.

D. EPA should develop a program in which inspections can be conducted by trained personnel to evaluate these and other factors that influence the likelihood and amount of fiber release. Such inspections should be organized to determine those sites that need definitive corrective action and those that need no response or a gradual control program.

E. EPA should provide in clear and easily interpreted communications, an explanation of the limitations of the risk assessment models of asbestos-related malignant disease at low levels of potential exposure. Such risks should also be placed in context and compared to other risks confronted in day-to-day life.

F. EPA should provide comprehensive information on, and encourage use of, asbestos material management programs both for comprehensive control and as an interim control method.

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	Lecturer, Department of Epidemiology and Public Health, Yale University School of Medicine.	1972 - 1981
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	Head, Department of Urgent Visit Service Clinic and in-patient services in primary patient care. Staff included rotating physician coverage, physician associate, nursing, and support personnel.	

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Naval Submarine Medical Center, New London, Connecticut, Military Operations. 1969 - 1972

Clinic, hospital, and general medicine duties. Consultation in radiation, chemical toxicology, and infectious disease. Medical Center Command Officer, Senior Medical Officer, Hyperbaric Medicine Officer, and Command Radiation Medical Officer.

Research: Headed section studying relationship of nuclear submarine environment and potential long term health effects. Directed research in hazardous material control and personnel protection.

Post Doctoral Research: Yale University School of Medicine, School of Epidemiology and Public Health 1967 - 1969

Principal investigator in prospective study of Epstein-Barr virus and other respiratory system viral pathogens. Study Published in Journal of Infectious Diseases.

Squadron Medical Officer: U.S. Navy Submarine Squadron Two, New London, Connecticut. 1966 - 1967

Clinical out-patient care. Medical system and preventive medicine program development.

Research: Special Projects Medical Officer, research and development.

Delegate to North Atlantic Treaty Organization (NATO): Committee on Unconventional Warfare. Nuclear, chemical, and biologic effects.

Medical Officer: USS Sam Houston. Polaris Submarine. The Holy Loch, Scotland. 1964 - 1966

General medicine, preventive medicine, and radiation control. Research in epidemiology and infectious diseases.

Military medicine: Submarine Medical Center, New London, Connecticut. 1964

Medical, surgical, and radiation control training.

PUBLICATIONS:

Sawyer R. Viral serology antibody survival versus storage temperatures available aboard nuclear submarines. Naval Submarine Medical Research Laboratory Report No. 474, 11 March 1966.

Sawyer R. Viral disease diagnosis aboard nuclear submarines. Naval Submarine Medical Research Laboratory Report No. 473, 10 March 1966.

Sawyer R, and Somerville R. Outbreak of mycoplasma pneumoniae infection in a nuclear submarine, JAMA 195(11):958-959, 14 March 1966.

Sawyer R N, Evans A S, Niederman J C, and McCollum R W. Prospective studies of a group of Yale University freshman. I. Occurrence of infectious mononucleosis. J of Inf Dis 123:3, March 1971.

Evans A S, Niederman J C, and Sawyer R N. Prospective studies of a group of Yale University freshman. 11. Occurrence of acute respiratory infections and rubella. J Inf Dis 123:3, March 1971.

Sawyer R. Yale Art and Architecture building contamination: Past, present and future. Proceed Int Conf Env Sens and Assess, September 1975.

Storrie M C, Sawyer R N, Sphar R L, and Evans A S. Seroepidemiological studies of polaris submarine crews II. Military Medicine, January 1976.

Sawyer R. Asbestos Exposure in a Yale Building: Analysis and Resolution. Envir. Res 13:1 146-168. 1977.

Sawyer R. Non-occupational indoor asbestos pollution. In: Dusts and Disease. Proceedings of conference on Occupational exposures to fibrous and particulate dust and their extension into the environment. R Lemen and J Dement, Ed. 1979.

Sawyer R, and Spooner C. Sprayed Asbestos-Containing Materials in Buildings: A Guidance Document. EPA-450/2-78-014 March 1978 (OAWPS No. 1.2-094).

Nicholson W J, Rohl A N, Sawyer R N, Swoszowski E J, and Todaro J D. Control of Sprayed Asbestos Surfaces in School Buildings: A Feasibility Study. Report to the National Institute of Environmental Health Sciences, June 15, 1978.

Sawyer R. Indoor Asbestos Pollution: Application of Hazard Criteria. Ann. N.Y. Acad. Sci. Vol. 330, 579-586, 1979.

Sawyer R, and Swoszowski E J. Asbestos Abatement in Schools: Experience and Observations. Ann. N.Y. Acad. Sci. Vol. 330, 765-776, 1979.

Sawyer R. Environmental Chemical Contamination Control in Aspheric Element Production. Proc. Optical Fabrication and Testing Workshop. Proceedings Optical Society America. September 22, 1980.

PAPERS SUBMITTED

Sawyer R.N., Rohl, A.N. and Langer, A.M. Airborne Fiber Control in Buildings During Asbestos Material Removal by Amended Water Methodology. Submitted JER 1983.

PAPERS IN PREPARATION

Sawyer, R. and Frazier, L. Management of Asbestos in Buildings: The Reasonable Approach.

PUBLICATION CONSULTANT

U.S. Environmental Protection Agency. Hazard Abatement from Sprayed Asbestos-Containing Material in Buildings: A Guidance Document. RTP, NC. EPA-68-02-2607, 1978.

U.S. Environmental Protection Agency. Asbestos Containing Materials in School Buildings: A Guidance Document, Part 1. Office Toxic Substances C00090. March 1979.

U.S. Environmental Protection Agency. Asbestos Containing Materials in School Buildings: A Guidance Document, Part 2. Office of Air and Waste Management. Office of Air Quality Planning and Standards. RTP, NC.EPA 450/2-78-014. 1978.

U.S. Environmental Protection Agency. Evaluation of Sealants for Sprayed-On Asbestos-Containing Material in Buildings. Battelle Columbus Laboratories. Columbus, Ohio. 1981

U.S. Environmental Protection Agency. Evaluation of New Technologies in Asbestos Removal. PEDCo International Research. Cincinnati, Ohio. 1981.

U. S. Environmental Protection Agency. Asbestos in Public and Commercial Buildings. Geophysical Corporation of America. Bedford, Mass. 1982

PUBLICATION CONTRIBUTIONS

Indoor Pollutants, National Research Council, Assembly of Life Sciences; Committee on Indoor Pollutants. National Academy Press, 1981

MAJOR CONSULTATION ACTIVITIES

A list of consultation activities will be provided on written request. The listed consultation activities will be appropriate to the requirements of the request and client confidentiality.

REFERENCES

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