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IN THE SUPERIOR COURT FOR THE DISTRICT OF COLUMBIA
Civil Division

LESLIE GILBERT, Personal Representative of the Estate of IRIS GILBERT, Deceased Plaintiff, v. A.O. SMITH CORPORATION, *et al.*, Defendants.	Case No. 2012 CA 006552 A Judge Michael L. Rankin Cal. 4

DECLARATION OF BARRY I. CASTLEMAN, Sc.D.

I, Barry I. Castleman, Sc.D., hereby depose and state as follows:

1. I am over the age of 18 years, have personal knowledge of and am competent to testify to the facts as set forth herein.

2. I live at 4406 Oxford Rd., Garrett Park, Maryland 20896. My education consists of a Bachelors Degree in Chemical Engineering from Johns Hopkins University 1968. I have a Masters Degree in Environmental Engineering, which was mainly in areas related to air pollution control from Johns Hopkins University, 1972. I have a Doctor of Science Degree in Health Policy from Johns Hopkins School of Hygiene and Public Health, 1985.

3. My professional experience goes back over 30 years in the area of asbestos and other occupational and environmental health problems. My field is occupational and environmental health policy, which is a branch of Public Health, mainly oriented towards the recognition of risk factors and the prevention of disease from industrial activities.

4. The Doctoral degree was awarded for two years of course work, various examinations, and the writing of a doctoral dissertation. The course work was mainly in the areas of toxicology, epidemiology, biostatistics, physiology, and public health policy. These are

the tools that are used to understand how the body works and can be damaged by toxic substances, how these effects can be identified by means of various studies of people, studies of animals experimentally exposed and so on.

5. My Doctoral thesis was, Asbestos: An Historical Case Study of Corporate Response to an Industrial Health Hazard, and is largely identical to a book published in 1984 by Prentice Hall Law and Business called Asbestos: Medical and Legal Aspects (now in its 5th Edition, 2005). The doctoral thesis is an historical review of the asbestos problem as a public health problem in society worldwide, but mainly in the United States. It encompasses a comprehensive review of medical literature of all kinds, as well as other literature available in libraries and published sources such as government publications, safety magazines, engineering journals, trade magazines, insurance publications, encyclopedias, popular magazines, and newspapers. The doctoral thesis also involved research based on unpublished government records. The government records included workers' compensation claims files where claims had been made by individuals alleging that they had asbestos-related diseases of the lungs, claims against various companies that were their employers, some of which companies were also manufacturers of asbestos insulation products these individuals has used in the course of their work.

6. In addition to published information of all kinds, I examined files, unpublished information available from the U.S. government archives, the archives of scientists and the archives of institutions that had worked for and with asbestos companies. I also looked at unpublished information which was obtained in legal discovery. This included trade association minutes, corporate documents, and testimony of corporate officials who were associated with

asbestos hazards over the years -- doctors, plant managers, executives, and other people who were aware of events that transpired.

7. In addition to published information and corporate knowledge that came out of mainly legal discovery, I have also interviewed a bunch of old-timers in the field of industrial medicine and hygiene. They included physicians who were active in the field of occupational medicine, such as Harold Stewart, who first published on asbestosis in 1931, and Alfred Angrist, who first published on asbestos and lung cancer in 1942. They are both pathologists. Another, Dr. Wilhelm Hueper, was a leading United States authority in the field of occupational cancer and first director of the environmental cancer section of the National Cancer Institute. Dr. Irving J. Selikoff was the leading epidemiologist and asbestos authority in the US. Dr. Hueper, Dr. Harriet Hardy, Dr. Thomas Mancuso, Dr. Gerrit Schepers, Dr. Richard Doll, Dr. Morris Greenberg, and others I have interviewed were involved in the area of asbestos and health over the past decades.

8. Over the years, I have examined a sizeable body of information that addresses household exposures to hazardous substances, including asbestos, and methods for preventing the transmission of asbestos dust into the household. Identified in this Declaration is a far from exhaustive list of certain important historic documents predating 1965 that address the need to avoid taking hazardous substances, including asbestos, home on clothing.

9. In 1913, the text, Safety, by W.H. Tolman and L. B. Kendall (p. 249) emphasized the importance of having workers remove work clothes before leaving a factory where toxic materials are handled, so the poisons would not be carried "into the homes of workers."

10. In 1914, W. Gilman Thompson, M.D. wrote in his text The Occupational Diseases, Their Causation, Symptoms, Treatment and Prevention, "The workman who goes

home ... wearing clothes steeped in ... dust or solutions of toxic materials in which he has been working ... carries much of his occupational hazard with him."

11. In 1942, the Pennsylvania Department of Labor published a safe practice bulletin (No. 93), Occupational Disease Prevention, which focused on the use of asbestos at a General Electric manufacturing facility in York, Pennsylvania and described mechanisms to protect the health of workers at the plant and to promote good housekeeping. In the section of the bulletin entitled "Health Routine", the following procedures, among others, were described as recommended practices:

> 4. Distribution and furnishing of following materials:
>
> (a) Clothing – coveralls – underwear – caps – gloves
>
> (b) Towels – soap – protective cream
>
> (c) Lockers – one for street clothes – one for work clothes
>
> (d) Shower baths – 15 minutes allowed in work schedule
>
> (e) Trained nurse – routine inspection and first aid
>
> (f) Lunch room facilities
>
> Employees enter the plant through the locker rooms provided, street clothes are deposited in a special locker room and working clothes provided are worn during factory operations. The reverse cycle is carried out at the close of the day.

The bulletin concluded by observing that these measures, along with others described, would aid in the "control of any health problem or housekeeping problem incident to the handling of asbestos fiber employed in the manufacture of electrical insulation for wire and wire products."

12. In 1943, the U.S. Public Health Service published its Manual of Industrial Hygiene. In the manual, after recognizing asbestosis (among other forms of pneumoconioses) as an occupational disease hazard, the Division of Industrial Hygiene for the NIH recommended "Two-compartment lockers, or preferably two individual lockers, should be provided in dressing

rooms for employees whose clothes are exposed to contamination with poisonous, infectious or irritating material."

13. In 1946, the Journal of the American Medical Association (JAMA) published an article by Dr. Wilhelm Heuper entitled "Industrial Management and Occupational Cancer," that recommended that workers handling carcinogenic materials, including asbestos, be provided with showers and special rooms for storing street clothes.

14. In a 1948 document circulated to members of the American Petroleum Institute's Medical Advisory Committee, Roy S. Bonsib, an industrial hygienist for Standard Oil of New Jersey stated: "Appropriate work clothes, properly fitted and maintained, play a prominent part in an industrial worker's health and efficiency. This is especially true when persons are working with more or less toxic or carcinogenic materials or where cleanliness is a factor in the maintenance of product quality. Consequently, many of the more progressive industrial organizations, such as E.I. DuPont de Nemours & Company, the American Cyanamid Company and the Borden Company, have for years supplied their employees with work clothing and have instituted a laundry service."

15. In 1949, the National Institutes of Health (Dr. Wilhelm Hueper, Chief of the Environmental Cancer Section of the U.S. National Cancer Institute) published Environmental and Occupational Cancer. The publication recognized asbestos as a source of occupational lung cancer. In describing measures to eliminate or control such cancer, Dr. Hueper recommended that exposed workers should be furnished with suitable protective clothing, gloves, masks and similar safety devices; and urged "separate lockers for street clothes and work attire". He also recommended that "workers should be familiarized through lectures repeated at regular intervals

of the type of carcinogenic hazard present, so as to obtain their willing cooperation in the enforcement of the various precautionary measures."

16. The 1949 Model Code of Safety Regulations for Industrial Establishments for the Guidance of Governments and Industry issued by the International Labor Office contained a series of regulations designed to reduce the hazards of exposure to dangerous substances (Ch. X). Those dangerous substances described included fibers and toxic dusts. The ILO stated that all personnel exposed to irritating or toxic substances shall be provided with suitable working clothing and head coverings where needed which "shall not be taken out of the factory by the users for any purpose," and shall be "washed, cleaned or changed for clean clothing at least once a week." The ILO also emphasized instruction of workers noting that "personnel shall be thoroughly informed, by means of posters and by verbal instruction of the health hazards connected with their duties and the measures to be taken to protect themselves therefrom."

17. A 1952 document entitled Safety and Health Standards for Contractors performing Federal Supply Contracts under the Walsh-Healey Public Contracts Act required that contractors provide facilities to prevent the communication of hazardous air contaminants, including asbestos, from work clothes by contact to street clothes. Subsequently, Walsh Healey regulations were published in the Federal Register in 1960. These regulations provided that, "Where employees' work clothes are exposed to contamination by poisonous, infectious, or irritating material, facilities shall be provided in change rooms so that street and work clothes will not be stored in contact with each other."

18. A 1955 publication by the Illinois State Federation of Labor entitled Cancer in Industry (Herbert K. Abrams, M.D.) explained that, as a safeguard against developing asbestos-induced lung cancer (and other occupational cancers), the worker should be furnished protective

clothing, goggles, gloves, and respirators and should change his work clothing daily with showers at the end of the day.

19. In a 1959 publication entitled Industrial Carcinogens, R.E. Eckardt, M.D., Ph.D., FACP (then director of the medical research division of Esso Research and Engineering Company), discussed asbestos-induced lung cancer and asbestosis and recommended for workers handling asbestos "the use of double lockers, one for street clothes and one for work clothes".

20. In 1963, the National Safety Council published Dusts, Fumes, and Mists in Industry and described various forms of pneumoconioses, including asbestosis. In this publication, the NSC described various methods to control the dissemination of injurious dust and concluded by stating "contaminated work clothes should not be taken home where a toxic dust could contaminate the home or expose other members of the family."

21. In October of 1964, Newhouse and Thompson presented a paper at the seminal Conference on Biological Effects of Asbestos held in New York wherein they described a series of patients who were exposed to asbestos dust brought home by a family member and later were diagnosed with mesothelioma. Newhouse and Thompson concluded in their paper that "there seems little doubt that the risk of mesothelioma may arise from both occupational and domestic exposure to asbestos ..."

I declare under penalty of perjury that the foregoing is true and correct.

Executed on:

1/15/14
Date

Barry I. Castleman, Sc.D.