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PLAINTIFF'S EXHIBIT

CAP-1200

Biological Effects of Ingested Asbestos

Status Report January 22, 1981

Introduction

The NIEHS is conducting a series of studies on the effects of ingested asbestos. These studies are part of the NIEHS commitment that is directed by the recently established National Toxicology Program. The Environmental Protection Agency has contributed approximately 10% of the total funding. A summary of the evolution of the study is to be found in Appendix A. A paper, given at a Workshop on Asbestos, Gaithersburg, Maryland, July 1977, detailing the studies' design and implementation is attached (Appendix B).

Current Status

Test Materials -- Two samples of chrysotile, and single samples of amosite and crocidolite asbestos plus a tremolite material are being tested. A repository of these materials was established and has also served as a source for other scientific studies on asbestos.

Each material has been extensively characterized as to physical and chemical properties. The fiber size characterization performed by the Illinois Institute of Technology Research Institute (IITRI), Chicago, Illinois, has been completed and a final report received. The chemical and physical property characterization performed by the U. S. Bureau of Mines is also completed.

Hamster Studies

Three asbestos materials are being studied at IIT Research Institute, Chicago, IL. The lifetime exposure phase of these experiments has been completed. There was no indication of major differences in the mortality rate between the hamsters receiving the asbestos diet or the control diet. Histopathologic examination of tissues from female hamsters has been completed. The contractor has reported that a preliminary analysis of the hamster data indicates that no carcinogenic or cocarcinogenic effect was observed. A standard independent quality review of the pathology results has been completed for the female hamster. A similar review of the male hamsters is in progress and is expected to be completed in March 1981. Analyses of the verified data and preparation of the draft report is in progress. The report is expected to be completed and submitted to the NTP Board of Scientific Counselors' Technical Report Subcommittee for independent public peer review in May 1981.

Rat Studies

Five test materials are being studied in this species at the Hazleton Laboratories, Vienna, Virginia. In addition, a subset of two studies includes neonatal as well as lifetime oral exposure to asbestos. The lifetime exposure phase of the study has been completed. Although data has not yet been statistically analyzed, it appears that longevity was not affected by exposure to the various types of fibers, although the known carcinogen (DMH) did significantly shorten lifespan. The histopathologic phase of the study is in progress and is projected to be completed in October 1981--there are a total of 5,158 rats to be examined. The histopathologic evaluation is to be completed by group and then subjected to pathology quality review. Sequential issuance of final reports by asbestiform type is being considered with the first reports projected to be available for public peer review in December 1981.

High Asbestos Level Found in State Aqueduct Water

By ERIC MALINIC

Times Staff Writer

"Unusually high" concentrations of asbestos—a known carcinogen—have been found in water transported to the Southland via the California Aqueduct, Metropolitan Water District officials said Friday.

However, while those concentrations have been 50 times higher than normal in some cases, virtually all the asbestos has been removed by filtration, and John Gaston of the State Department of Public Health said he thought there was "no discernible health hazard."

"There has been no link between asbestos in water and cancer in the body," he said.

Safety standards for asbestos concentration in water have never been established.

Supplies Cities

The connection between the compound and cancer usually is mentioned in connection with asbestosis, a progressive respiratory disease caused by the inhalation of asbestos fibers suspended in the air.

The large amounts of asbestos measured in aqueduct water last summer apparently came from storm runoff that had drained through abandoned asbestos mines in the Coalinga area, according to Dave Kennedy, MWD's assistant general manager.

Coalinga, a small farming town 50 miles southwest of Fresno, is one of the few places where runoff is permitted to enter the aqueduct. The aqueduct supplies some of the drinking water used by 129 cities in Southern California, among them Los Angeles.

Water from the aqueduct is diluted with water from other sources before it is pumped to consumers. Los Angeles, which gets most of its water from the Owen Valley project, receives only about 5% of its drinking supply from the California Aqueduct.

The water systems' filtration processes take out about 99% of the asbestos, Kennedy said, adding, "Some of the samples we've taken down here show no detectable level."

Last summer's tests for asbestos were conducted near Coalinga after officials of the Calleguas Water District in Ventura County "asked us to take a look," Kennedy said.

The Ventura County officials had become concerned when they discovered high levels of the contaminant that apparently were not connected with their use of asbestos pipe, he said.

The concentrations of asbestos ran as high as 1.5 billion fibers per liter, as opposed to the norm in California of about 30 million fibers per liter.

Microscope Needed

Ironically, that normal concentration comes from runoff washings over serpentine—the jade-green mineral that has officially been designated as California's state rock.

The individual asbestos fibers are extremely small, Kennedy said, so small—about one-four hundred thousandth of an inch in length—that they can be viewed only with an ultrasensitive electron microscope, which magnifies the particles about 20,000 times.