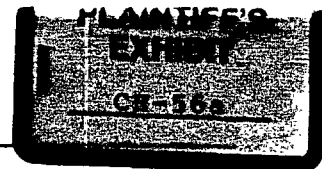


HYGEIA INC.



March 30, 1990

Richard B. Kirby, Esquire
David M. Governo, Esquire
Kirby and Governo
20 Ashburton Place
Boston, MA 02108

Subject: A.W. Chesterton Company;
Photography of Asbestos Structures
HYGEIA INC. Job No. 5617
88-3280, 88-3281, 88-3282
Ref: TEMRpts/Kirby2

Dear Gentlemen:

Three samples collected during a gasket and packing removal at A.W. Chesterton Company were analyzed by transmission electron microscopy at the HYGEIA INC. laboratory. This analysis was performed at the request of the law firm of Kirby and Governo to categorize the asbestos observed according to size. One sample was collected during the gasket removal (sample 88-3280), one was collected during the packing removal (sample 88-3281), and one sample was collected from the breathing zone during the whole operation (sample 88-3282).

The analysts were asked to scan each grid opening at approximately 12000X - 15000X magnification (varying from this to identify the smaller structures when necessary). The initial identification of chrysotile asbestos was originally confirmed by the analysts - not all structures were x-rayed or had selected area electron diffraction performed. Morphology was used for identification purposes in many instances. Seven hundred and thirty-four grid openings were scanned. Each grid opening was 0.006974 mm² in size.

The OSHA definition of a fiber is a structure greater than 5 micrometers in length with a 3 to 1 aspect ratio. Of the 95 structures observed, a total of four fibers greater than 5 micrometers in length with a 3 to 1 aspect ratio were found.

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Three hundred eighty-six grid openings were analyzed from the gasket removal sample with a total of twelve structures observed. Three structures were particles with acicular bodies protruding, with nine structures being either single acicular bodies, bundles or clusters of asbestos. Of these twelve structures, one fiber greater than 5 micrometers was observed.

One hundred twenty-one grid openings were analyzed for the packing removal sample with a total of 66 structures observed. Fifteen structures were particles with acicular bodies protruding, with 51 structures being either single acicular bodies, bundles or clusters of asbestos. Of these 66 structures, no fibers greater than 5 micrometers were observed.

Two hundred twenty-seven grid openings were analyzed for the breathing zone during the whole operation sample with a total of 17 structures observed. Twelve structures were particles with acicular bodies protruding, with five structures being either single acicular bodies, bundles or clusters of asbestos. Of these seventeen structures, three fibers greater than 5 micrometers were observed.

An approximate fiber per cubic centimeter (f/cc) concentration for fibers greater than 5 um in length with an aspect ratio of 3 to 1 or greater has been calculated as follows:

Sample 88-3280	-	volume 80.8 liters
Gasket Removal		0.0018 f/cc
Sample 88-3281	-	volume 108.1 liters
Packing Removal		None Detected
Sample 88-3282	-	volume 190.2 liters.
Breathing Zone		0.0038 f/cc
During Whole Operation		

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Please find enclosed the corresponding data including bar graphs of size relationships and 8" x 10" photographs of the structures. If you have any questions, please feel free to call.

Sincerely yours,
HYGEIA INC.

Maureen Parker

Maureen Parker
Supervisor, Electron Microscopy

MP/jp
enc.