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March 12, 1992

Peter Kraus
Baron & Budd, P.C.
The Centrum
3102 Oak Lawn Avenue, Suite 1100
Dallas, Texas 75219

Dear Mr. Kraus:

This will describe the tests and conclusions which I made of two Garlock gasket samples which you sent me.

The two samples are described as follows:

- #1 A piece of gasket in the shape of an arc about 17 inches long and 2-3/8 inches wide, with 1 inch diameter holes punched out. The piece is stamped with the letters "7021". A gummed label is attached to it which reads "Garlock".
- #2 A piece of gasket measuring about 6 inches by 5 inches by 1/16 inch thick. The piece is stamped with the word "Garlock". A gummed label is attached to it which reads "Garlock gasket material" and "gasket material Hi Temp".

By using polarized light microscopy and x-ray diffraction, I determined that both samples contain about 50% to 60%, or more of chrysotile asbestos.

I made an estimate of how much chrysotile asbestos might be released even by light handling of these gaskets, as follows:

The samples were removed from the transparent plastic zip-lock bags in which they were received. The samples were then lightly scraped with a metal laboratory spatula over a 1" x 3" glass slide on which two drops of nitrocellulose solution (1%) in amyl acetate had been placed. Another slide was placed upon the first (overlapping about 1 inch). The two slides were drawn apart leaving a film on one side.



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of each of the two slides. The film which contains the dust released from the gasket was dried, cut into slices and mounted onto electron microscope grids for examination.

The electron photomicrographs clearly show that chrysotile asbestos was released in large numbers by scraping lightly the two gasket samples. These photographs were taken on several grids, confirming the homogeneity of particulate distribution on the film. It is estimated that millions of asbestos fibers were released in this way. Many of the fibers were of respirable size. It is reasonable to assume that in cutting and fitting such gasket materials, a worker would be exposed to very high levels of asbestos dust.

By using electron microscopy, the morphological characteristics of chrysotile are sufficient to identify it. However unequivocal identification was done using energy dispersive x-ray analysis of the fibers. These chemical spectra show that the magnesium, silicon and iron compositions and ratios are identical to reference chrysotile specimens.

Please do not hesitate to contact me if there are any questions.

Sincerely,



Arthur N. Rohl, Ph.D.

M E M O R A N D U M

TO: RUSSELL
LISA
SARAH

cc: All attorneys
Pat Folkerth

FROM: PETER PAK

DATE: JULY 23, 1992

RE: JULY 15, 1992 MEETING WITH DR. ARTHUR ROHL IN
ALLENTOWN, PENNSYLVANIA

I met with Dr. Arthur Rohl, Dick Scruggs, and Craig Biegel, an OCF attorney, regarding tests performed by Rohl at the behest of Owens Corning.

Rohl was a relatively pleasant, soft spoken and somewhat overweight man who appeared to be in his late 40's. He appeared scholarly and well qualified, but seemed a little too soft spoken and indecisive to be a particularly good witness. The tests he performed at OCF's behest were, however, very interesting.

DESCRIPTION OF TESTS:

OCF basically arranged for Dr. Rohl to simulate typical work

The experiments were performed in an abatement enclosure with negative air pressure. Dust levels collected by the filters were measured both by phase contrast microscopy ("PCM") and transmission electron microscopy ("TEM"). They were advised on appropriate work practices by a pipefitter from New Jersey. Dust level measurements were made using fibers per cc measured by both PCM and TEM. Scruggs suggested that this could be related to everyday experience by asking any testifying pulmonologist at a trial "how many ccs of air does a man at rest breathe in a minute?" He said any pulmonologist will admit that an average breath contains about 500 ccs of air. He said a doctor will also estimate that a man at rest takes 10 breaths a minute. By multiplying it out to a full day, one can arrive at a fairly impressive figure for asbestos fiber exposure using the measurements of 1 to 2 fibers per cc Dr. Rohl saw.

Although the measurements obtained by TEM were fairly impressive, the PCM measurements were quite low. This is harmful because both Scruggs and Biegel stated that OSHA only requires PCM to be used to measure dust levels in work places. PCM only counts fibers over 5 microns in length. TEM counts all fibers of all lengths. This runs afoul of what Scruggs referred to as the "Stanton Hypothesis" which is an article used by defendants for the proposition that only long, narrow fibers (5 microns and longer) are carcinogenic; supposedly, shorter fibers are more inert.

Both Beigel and Scruggs noted the weaknesses in this hypothesis and the OSHA standard requiring only PCM by noting that the OSHA standard only relates to asbestosis, not cancer. They

stated that OSHA only requires PCM because it is readily available. The 5 micron cut-off comes not from the relatively greater carcinogenicity of the fibers, but from the fact that PCM cannot measure fibers shorter than 5 microns.

DUST MEASUREMENTS FOR BRAKE INSTALLATION AND DRYWALL WORK:

Rohl explained that he had in the past performed actual air measurements of asbestos dust levels produced by grinding and blowing out brakes during installation, as well as during plastering and sanding during drywall work. He has published many of these studies. We should list Rohl as an expert in these disciplines.

CROSS EXAMINATION:

Dick Scruggs performed a cross examination to cover some of Rohl's weaknesses. Among the issues that came out on cross examination are the following:

1. Ph.D. issue - Rohl completed his course work and dissertation in 1973, but did not have his edited, accepted and published until 1985. He represented himself as a doctor in the interim. Rohl will testify that he considered himself a Ph.D. and lacked only his sheepskin. He said nothing substantive remained to be done regarding his Ph.D. He considers it simply a clerical matter.
2. Almost all of his consulting has been for plaintiffs. He has worked extensively for Martin Dyess, but has also worked for Bracewell and Patterson. Of course, now he also consults with OCF.

OTHER TESTS:

The asbestos cable and asbestos glove tests performed during the OCF sponsored experiments produced impressive airborne dust measurements. The gloves in particular were extremely dusty, and if we have any glove manufacturers and can get ID for our welding and electrical clients, they may be good defendants.

Rohl discussed a number of other issues, including the different methods used for fiber counting. Direct preparation (not shaking the sample up) produces less fibers with bigger clusters of fibers. Indirect preparation (shaking up the sample) breaks down the clusters and produces higher fiber counts, but smaller groups of fibers.

OTHER DEFENDANTS:

Biegel and Scruggs talked about some other defendant development projects they were working on together as part of the OCF out reach program:

WESTINGHOUSE -

Scruggs has obtained a sample of micarta board and is going to work with Rohl to do fiber counts produced by working with micarta. He said he would make these tests available to us.

W. R. GRACE -

Rohl has examined zonolite samples that were supposedly asbestos free. He has found that the vermiculite used was contaminated with tremolite. This was supposedly a monocote product without asbestos which was typically sprayed on ship hulls. Scruggs and Biegel said that measurements of 1-2% tremolite contamination have been measured.

MAGNISITE DEFENDANTS -

Magnisite is a joint compound type product containing approximately 6% asbestos. OCF has identified two manufacturers of this product, Selby, Battersby from Oklahoma and J.E. Staggerwall from Baltimore, Maryland. OCF obtained a military specification which showed the product was not required to obtain asbestos by the military. However, OCF obtained other evidence that both of these companies included the asbestos anyway. Biegel and Scruggs said that the product is used by mixing it like asbestos mud, and then pouring it down in ships' decks and factory floors as a concrete flooring. The following day, workers come by with power sanders to sand this surface smooth, producing huge clouds of dust. Both Scruggs and Biegel claim they can provide additional information on this product.

CONCLUSION:

Rohl appeared to be a helpful witness in gasket, packing, brake shoe and joint compound cases. He stated that the Sepco gasket materials he examined for us were similar in composition to the Garlock gaskets he performed the simulation testing on. He should be particularly helpful against Sepco.

Both Biegel and Scruggs offered to speak with me further concerning new defendant development.