PLAINTIFF'S EXHIBIT

UC-4014

INTERNAL CORRESPONDENCE

MINING AND METALS DIVISION

P. O. BOX 575, NIAGARA FALLS, NEW YORK 14302

AIR MAIL

To (Name) Dr. T. J. Hall
Division Union Carbide Belgium N.V.
Location 149 Avenue Louise
Bruxelles 5, Belgium

Date September 19, 1967

Originating Dept. Research and Development Department

Answering letter date

Copy to Messrs. H. F. Wendt
R. G. Woolery

Subject

Dear Tom:

My apologies for not having been in contact with you sooner concerning the asbestos analyses. Our Analytical Laboratory has been quite busy lately and it has been difficult to get work scheduled which does not have a high priority. A semiquantitative spectroscopic analysis has been carried out on the five samples we received from Dr. Timbrell, plus a sixth sample of our high-purity Coalinga product. These data are listed on the attached sheet, coded as follows:

1619-90-1 Chrysotile - A (Green Dot) probably Canadian composite
1619-90-2 Chrysotile - B (Red Dot) probably South African
1619-90-3 Crocidolite (Blue Dot)
1619-90-4 Amosite (Black Dot)
1619-90-5 Anthophyllite (White Dot)
1619-90-6 Chrysotile - High-Purity Union Carbide Coalinga Product

The best value from the spectroscopic range would be three times the lower value reported. That is, for a reported range of 0.007-0.07, the best estimate would be 0.021 weight per cent. The spectroscopic limits of detection are also attached for reference. As you can see, the detection limits of certain elements, which may have biochemical significance (As, Pb, U), are relatively high and therefore these elements may not have been detected in this work.

Insofar as better estimates of the dozen or so trace elements listed on the attached sheet are concerned, our Analytical Laboratory informs me that parts-per-million values could be obtained, probably by atomic absorption methods, with the expenditure of about $1500-2000 - one man-month. This would involve considerable effort in preparing standards, mixtures of known concentrations, etc. At the present time the following elements could be estimated quantitatively for about $10.00 per element per sample - K, Mn, Mo, Na, Ni, Co, Ti. The others would require the added work. Considering the costs involved and the work load of the laboratory, they have suggested that preliminary correlations be made by Dr. Timbrell's group based upon the semiquantitative data now available, and that significant elements be examined further at a later date. I think this is a good approach.

I hope that this information has been of some help to you. Please let us know what you wish us to do further. I do not think that additional amounts of these five samples are required at this time.

My wife and I enjoyed very much our getting together in Oxford. I only hope we can do it again sometime.

Best wishes,

Fred

F. A. Mumpton

FAM:et
Incl. (2)

ANALYTICAL DATA NOT CLEAR ENUF TO COPY

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