PLAINTIFF'S EXHIBIT
Union Carbide 54

MEMORANDUM

To: Mr. A. E. Montagna
Dr. R. E. Leech
Dr. F. W. Stone

From: N. R. Eldred Date: March 21, 1963

Subject: DISCUSSION OF USE OF ASBESTOS IN PAPER, MR. HAROLD REICHARD, UNION CARBIDE NUCLEAR COMPANY, TUXEDO, NEW YORK - MARCH 12, 1963

After my calls on Mr. Shannon and Dr. Sauvage on Monday, I drove to Sterling Forest on Tuesday to discuss recent developments in the use of asbestos in paper with Bob Woolery and Harold Reichard.

They are installing a paper laboratory and have already received their Noble and Wood handsheet machine. In the meantime the University of Maine has been carrying out handsheet evaluations as they needed them. Mr. Woolery called at Crown-Zellerbach, Inland Empire, Fiberboard, Potlatch Forests, and Hyperion on the West Coast this winter. UC Nuclear is stirring up a good bit of interest in the addition of asbestos fibers to paper to modify absorptive properties and to increase TiO_2 retention. Asbestos strongly absorbs many colloidal materials.

Nuclear has a project going at the Institute of Paper Chemistry adding asbestos to paper at various levels and correlating level of addition with as many properties as the Institute can think of. They have observed that a Jockro mill gives good strength to the sheet, although refining with any of the conventional refiners results in weakened sheets. They do not yet know why.

They have found that asbestos reacts with phthalic and maleic anhydrides as well as with stearic acid, or at least the acids cannot be extracted after heating with the asbestos. Percy Smith of our R&D laboratories is investigating the reactions of asbestos in organic systems. Percy told me that apparently the organic reactions of asbestos have never been studied. He is interested, among other things, in trying to hydroxyethylate or hydroxypropylate asbestos and will try reaction with propylene oxide first.

Because Mr. Woolery was tied up with a vice-president most of the day, my trip was not as fruitful as I had hoped. They suggest we come back to visit them at the time of the Coatings

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Conference at Lake Kiamesha which is only a few miles from Sterling Forest and we can continue our discussion of mutual research interests.

Dr. D. L. Stockton took me up the hill to see the reactor and the hot lab.

mv

Nelson R. Eldred