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DOCUMENT DESCRIPTION: Letter from Univ of Maryland to Rollins Burdick Hunter of Il. - Samples Sent are Identified as Tremolite Talc

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DEPARTMENT OF
GEOLOGY
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August 25, 1982

Mr. George MacDonald
Rollins Burdick Hunter of Illinois, Inc.
10 South Riverside Plaza
Chicago, Illinois 60606

Dear Mr. MacDonald;

Using polarized light microscopy and dispersion staining, I have examined the sample you sent to me identified as tremolitic talc. I have identified the following minerals in this sample: platy talc, tremolite, fibrous talc and anthophyllite. Of these, tremolite and anthophyllite can occur in nature in an asbestiform habit and are then called asbestos. The characteristics of this habit which are visible using the optical microscope are:

1. fiber bundles exhibiting splayed ends
2. parallel extinction (The non-asbestiform varieties may exhibit oblique extinction.)
3. curved fibers
4. extreme elongation often in excess of 100:1

The tremolite and anthophyllite present as major constituents of this sample do not exhibit any of these characteristics. All of the tremolite and anthophyllite particles I observed are properly called cleavage fragments. Most of the cleavage fragments are elongated and many have aspect ratios in excess of 3:1. According to our existing federal government regulations these cleavage fragments can be called fibers. However, this is not mineralogically valid. I observed no anthophyllite or tremolite asbestos fibers in the sample I examined.

There are, however, true mineral fibers in the sample. I have identified them as fibrous talc. They are distinguished from the amphiboles tremolite and anthophyllite on the basis of their index of refraction. The maximum index of refraction of fibrous talc does not exceed 1.596. All of the fibers I observed in this sample had indices of refraction equal to or less than 1.596. This value is much too low for tremolite or anthophyllite asbestos. Fibrous talc is thought to form from anthophyllite. It also exhibits the characteristics listed above for the asbestiform habit. Although I did not observe any in the sample portion I examined, there may be a few fibers which fall somewhere between anthophyllite-asbestos and fibrous talc present from this locality. The abundance of this material is vanishingly small and it should be considered as occurring in trace quantities only.

Sincerely yours,

Ann G. Wyllie

Ann G. Wyllie
Associate Professor

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