From: Pier, Julie (LNA)
Sent: Thursday, April 04, 2002 1:51 PM
To: DUCASSE, Bruno (CIT)
Cc: Godla, Jon (LNA); Zazenski, Rich (LNA)
Subject: RE: Clivage fragments

Bruno:
I did speak with Garry Burdette from HSL. Here is my interpretation of what he said. He feels that it is generally accepted based on empirical observation that when amphibole asbestos is present, the MEAN aspect ratio of all the fibers that are greater than 5 um is 20:1 or greater. Apparently, once you establish that fact, then you can feel comfortable classifying all the fibers in the sample as asbestiform. To establish this, he feels you should characterize a "population" (i.e. 20-30) of the larger fibers at a lower magnification. Then, go back and do counts at higher magnification. He doesn't feel that you can discount small fibers with less than 20:1 aspect ratio (because they are talking about a "mean of the population"), just that you need to establish the aspect ratio of the population first. He did not have a good suggestion for what to do when there is only a trace amount of amphibole present, like we have had. I seriously doubt that we could find 20 to 30 "fibers" in the samples I looked at. So the issue does not become any clearer, I'm afraid. He also said that diffraction patterns are not as important as collecting chemistry on amphiboles.

R.J. Lee has a different approach to the whole thing. They believe that if you can find a hint of a diffraction pattern from another mineral while you are looking at the amphibole fiber, then you can call the fiber "transitional" and not truly amphibole. The analyst told me that when she finds a tremolite fiber, she will tilt the stage until she can see a talc diffraction pattern come into view. I am very skeptical of this. There is a lot of scatter of the electrons and you can sometimes get interference in the diffraction patterns from adjacent particles, especially at higher tilt. I have spoken to someone at the USGS about this, and they are also skeptical about the R.J. Lee philosophy. The analyst has mentioned several conversations/meetings with the folks at R. T. Vanderbilt (for what that's worth).

The problem is that neither of these philosophies is addressed in any of the accepted published procedures that are being used by independent laboratories. Although the EPA did recommend at one point adopting a 20:1 aspect ratio for the asbestiform definition, I am not aware that this has been officially accepted. And for legal issues, I would think that the analysis would have to refer to some accepted procedure, not the opinion of the analyst.

Given all this information, do you have any suggestions on how you would like me to proceed on the latest Sardinian talc samples you sent?

Regards,
Julie

-----Original Message-----
From: DUCASSE, Bruno (CIT)
Sent: Thursday, March 28, 2002 10:29 AM
To: Pier, Julie (LNA)
Cc: GAVOILLE, Bernard (LEU)
Subject: Clivage fragments

Julie,
Did you have the opportunity to speak with Burdett?
I went back to the ISO 13794 document and did not see anything mentioned about that identification aspect. Does that mean that anything meeting aspect ratio criteria and amphibole chemistry is identified as asbestos? Or are they other aspects?
The Research Triangle Institute report concludes that in Gouverneur case there is no asbestiform Tremolite because none of these fibers had aspect ratio>20: below that everything was considered clivage fragment!
Looking at HSL count, a few fibers would undoubtly qualify as asbestos but a lot could be requalified

as clivage changing significantly the concentrations reported. Is that the story with Lee?
What is your opinion? Kind regards. Bruno

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