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Subject: AN ASSESSMENT OF THE J-M POSITION WITH TALC

Three years since J-M's entry into the talc business with the acquisition of Desert Minerals Company is time enough for an appraisal of our position. This assessment is broken down into eight sections as follows:

1. The Effects of Labeling: Our position here has been the only acceptable action J-M could take. According to the definitions that are a part of the law, our California talc products all contain asbestos in the form of tremolite. No play on words will change this fact.

   Originally, I had felt that if we could maintain the uniquely high brightness and relatively low acid soluble content of G-1 and G-2 talc ores, we could hold onto most of the critical markets, in spite of labeling. I now seriously doubt our ability to do this.

   The "talc-asbestos" problem is quite different from the "asbestos-asbestos" problem. In many applications for asbestos, there are no acceptable substitutes. With our asbestos-containing talc, there are numerous possibilities for substitution:

   (a) Non-asbestos containing talcs from both Pfizer and Cyprus from Montana sources and

   (b) Other extender pigments such as kaolin and calcium carbonate (in paints, for example, and in paper filling uses).

   We see this type of substitution being made and long-established markets for Desertalc products evaporating in the process.

2. The R. T. Vanderbilt Position: Their position with respect to labeling must be deliberately perfidious; they cannot be this misinformed. Slim Thompson, their technical director, has a Ph.D. in mineralogy. At the moment, Vanderbilt is misleading their customers and confusing ours with their decision not to label. Ultimately, the truth will out, and they will be forced to label.

   Pfizer's position is the same with their California talcs. With all asbestos-containing talcs labeled, far greater value and emphasis in the market will be applied to asbestos-free talcs. I seriously question the capacity of these asbestos-free talcs to satisfy the total market. Also, in some applications, the asbestos-free talcs are just not a suitable substitute quality-wise. For example, in ceramic wall tile (a major market for tremolitic talc) there are few, if any, asbestos-free talcs that show the same forming and firing properties. Penhorwood fires to a brown color due to high iron content. G-1 Fires white due to very low iron content.

   Nevertheless, it is a fact that the Montana talc (asbestos-free) business of both Cyprus Industrial Minerals and Pfizer is booming, while we are in the doldrums.

3. Quality: Historically, talc mining has been a high-grading operation with selective mining required to maintain acceptable quality for various uses. This type of selective mining was done successfully for over 25 years at the Grantham Mine. Proper quality and uniformity of ore were seldom, if ever, problems and sizeable markets were built on this foundation of quality.

   The unique high brightness of Cyclo-Fil (95% G.E.) was, in the past, properly maintained and a good and profitable market developed for this product in paper filling. With the brightness of current quality Cyclo-Fil dipping as low as 89%, there is no way we are going to maintain this business. Clays and other fillers at half the price of Cyclo-Fil can and are being used.

Other quality considerations relating to high acid soluble content and improper grind have caused an erosion of our paper industry business until virtually nothing remains.

4. Markets: At one time (less than three years ago) sizeable markets for Desertalc products existed in paper, paint, plastics, and ceramics. Both DT-51 and DT-57 were the most widely used fillers in 40% talc-filled polypropylene. We lost this business prior to labeling because of tremolite content. Many of our paint and paper accounts have been lost for the same reason and labeling has accelerated this loss. Labeling, plus the loss of proper quality, has been disasterous.

   Ceramic sales of DT-51 have been difficult to maintain. High acid soluble and water soluble contents of G-1 ore have resulted in casting slip gelation and rheological problems. The high acid soluble content of current quality G-1 and G-2 ore has increased the alum demand of both Cyclo-Sorb and Cyclo-Fil in paper applications to the point where, even if we had proper brightness, a paper mill could not afford to use our products.

   I can foresee no markets that can be built or rebuilt under present conditions.

5. New Technology: Froth flotation will reduce the tremolite content of G-2 ore to less than 1%, but will not remove all of the tremolite. In such a wet process, acid leaching will increase brightness several points. HIMS could probably also be used to remove even paramagnetic material to improve brightness still further.

   Newly developed sand or attritor milling procedures can grind down to a maximum particle size of under 2 microns, but I believe that all of these new techniques are a waste of time as long as we have to label. Also, the relatively high mining costs at Warm Springs, plus the absence of adequate water for these wet processing methods makes the development of other sources more attractive.

6. Penhorwood: Based on detailed testing, we feel certain that Penhorwood talc can be developed as a major source for pitch control and should be directly competitive with Mistron Vapor (Cyprus Industrial Minerals Montana talc). Other markets may be developed for Penhorwood in plastics filling, elastomer reinforcement, and paint. Although in this latter use, the relatively low brightness of Penhorwood is going to be difficult to overcome. If higher brightness grades could be developed from the same mining area, additional markets would become available.

In paint uses, wet color uniformity is a major consideration and must be maintained with Penhorwood talc or any other extender pigment. Analyses of Penhorwood core samples suggest that this may become a major problem.

7. Other Worldwide Talc Sources: With the worldwide decline in the industrial use of tremolitic or asbestos-containing talcs, sources for asbestos-free talc will surely become more valuable. Major sources for this type of ore exist in France, Italy, Spain, India, Red China and other parts of the world. Generally, all of these deposits are selectively mined.

Only Finntalc and Johnson and Johnson are using froth flotation to separate talc products of acceptable quality. We will do the same at Penhorwood, and the industry must move in this direction as deposits amendable to high-grading are depleted.

Talc producing areas in California, Nevada, and Montana have been thoroughly--if not systematically and professionally explored. It is unlikely that new large-scale talc-mining properties could be developed. However, this possibility should be explored--but only for asbestos-free materials. There would appear to be an opportunity for good geological work.

8. Conclusions and Recommendations

a. Labeling, plus a general decline in quality, has caused a disasterous loss in J-M talc business. Some of this business might be regained in spite of labeling, providing we could re-establish prior high quality standards in both our mining and milling of these products. However, the effects of labeling will always place us in a serious competitive position. The economic viability of such an operation is also highly questionable.

b. Until Penhorwood is in operation, we should try to hold onto as much of our existing talc business as possible. Such a holding action will be difficult, expensive, and disheartening, but should be done. Penhorwood will not replace all existing markets for Grantham talc because of darker color and other differences.

c. Beyond the development of Penhorwood, J-M should attempt to develop on a worldwide scale, other asbesto free sources for talc mineral. These will most surely become more valuable with time.

It would be unfortunate, indeed, if we were to let our poor performance with Grantham talc interfere with J-M development of other worldwide talc sources under more desirable conditions.

R. S. Dunn