

PLAINTIFF'S
EXHIBIT
CAM-273

TO: E. H. READE

OCTOBER 14, 1988

FROM: M. J. KEENER

SUBJECT: WINDSOR MINERALS EVALUATION

Due diligence work completed during the week of September 25, 1988 included the evaluation of all Windsor Mineral open pit operations, inspection of grandfathered sediment ponds, and the review of available reserve data.

The five mine sites in the Ludlow, VT area include (from North to South) the Rainbow Mine, the Black Bear Mine, the Argonaut Mine, the Frostbite Mine, and the Clifton Mine. The ore observed in these pits and in representative drill cores varies quite a bit from mine to mine, but the ore is not dissimilar from talc carbonate from other Vermont ore bodies. The ore, a talc-carbonate, varies from a massive rock to one displaying a high degree of schistosity (flakiness). The talc to magnesite ratio can vary quite a bit, but appears to have definite zonations within an ore body. Accessory minerals appear to be typical but highly variable with quartz, magnetite, chlorite and sulfides being common. Amphiboles were observed in the core but occur in definable units which can be segregated from good ore. Some unique occurrences are also associated with these ore bodies. An intrusive dike (tonalite) is cross-cutting the two northernmost mines. Large inclusions of vein-like talc (flaky, light-green, translucent talc) are very common in southeast portions of the Rainbow Mine.

The Ludlow Mines have evolved from an open pit (Clifton Mine) to underground operations (Frostbite and Argonaut) back to open-pit operations. Continuous miners were used to mine both the underground and open pits until recently. Backhoes equipped with pick hammer or bucket are now used to mine. Blasting techniques are being phased into daily mining procedures.

MINES:

Rainbow Mine

The Rainbow Mine is the northern-most pit, it is nearest to the Ludlow Mill. It is presently being open-pit mined for industrial grades of talc, but plans are being undertaken to get this mine approved for cosmetic grade talc. The mine has been operated solely as an open pit for a number of years and has always possessed high-brightness characteristics but has never been

considered as a producer of cosmetic- grade talc because of arsenic considerations. A recent study of arsenic concentrations, brightness values, and insoluble mineral concentrations completed on a closely gridded drill pattern confirms that there are areas in the pit bottom that have very low arsenic values which are associated with high-brightness, high-grade talc ore.

Consideration should be given to ore deeper than the 8 foot depth defined by the drilling program. Also, the arsenic level of stockpiled ore over a period of time should be studied.

Black Bear Mine

The Black Bear Mine is the next open pit along strike to the South of Rainbow. It has been relatively recently developed to supply the majority of Windsor's industrial grade talc. The ore body has a strike length of approximately 1000 feet. It varies in width from a maximum of 300+ feet to less than 70 feet. The variation in width is controlled not only by the typical pinching nature of the ore body but also by folding and faulting. The orebody (as is the Rainbow) is also complicated by a quartz/feldspar rich intrusive tonalite that obliquely cuts across the ore body.

The ratio of high and medium grade ore to low-grade ore appears to favor the low-grade ore in this particular mine. The vast majority of the north half of this deposit is dominated by the talc-magnesite grit rock (with higher concentrations of carbonate). A medium- to high-grade ore borders the east side of the ore body and extends as a separate limb to the south.

Analytical work on talc to magnesite ratios, brightness values and accessory mineralogy should be completed on existing core and related to product lines. This type data could help make blending of ore types more meaningful.

Mining has begun to develop the entire strike length of the ore body. This should help the selective mining process by making a wide selection of ore material available. At the same time a fair amount of development work has been left. Serpentinite bodies, chlorite zones and marginal carbonate zones as well as the narrowing of the ore body in the middle will have to be considered as this ore body is developed. Because nearly half of the industrial grade will be produced from this mine (assuming the Rainbow will be approved for cosmetic purposes) a conscientious development program will have to be adhered to.

Argonaut Mine

The third mine to the south, the Argonaut Mine, is the only Ludlow area mine approved for cosmetic use at this time. It had been worked as an underground mine but is presently being worked as an open pit.

Working area in the pit bottom is tight at present but plans to remove 100,000 cubic yards of the eastern highway will be put into motion during the last part of 1988.

Frostbite Mine

The Frostbite Mine is the next mine to the south. It was originally worked as an underground operation but has not been extensively worked in four years. It has been kept in active status by periodically mining small areas of talc ore at the surface but it has not been operated as a fully developed open pit. It does have the potential to be excavated as an open pit operation, especially on the north and central portions of the orebody.

The Frostbite has a strike length of 2500 to 2800 feet. Its apparent width ranges from over 150 feet to nearly nothing on the southern most extreme (although at one time it was hoped that the Frostbite and Clifton Mines could be connected through underground workings). Drilling has shown the orebody to extend downdip to somewhat greater than 200 feet but there is strong evidence of downdip thinning of the orebody. Because of this probable ore past 200 feet below ground surface is problematic. Medium to high grade ore appears to dominate in the cross sections, especially in the north half of the orebody but all holes would have to be relogged and perhaps tested for talc and magnesite to determine how the 1974 grade determinations correspond to present ore ratings.

An Upper-level underground mining operation started at approximately 1620 feet (elevation above mean sea level)) and worked south up to 1635 feet in about 1550 linear feet. A decline off of this tunnel some 1200 feet from the start, descended from 1630 to 1560 in about 800 feet in a southerly direction. A second-level working started south declining from 1620 to 1562 in about 360 feet before switching back north and declining to 1525 in about 360 feet. A short tunnel to the northeast tried to follow a second limb off the orebody, apparently unsuccessfully. This drift turned back south and worked back up to 1535 over a 800 foot distance. The northern extension of this level worked down to 1505 over a 800 foot distance. There may be another decline that is water filled on this north end according to the available map (or it may be just a sump).

Total underground workings appear to involve some 2800 feet of strike length with a maximum working width of 175 feet but with single tunnel working widths most common.

The potential for an open pit on this mine site exists especially on the northern third of the deposit. Drilling of the outcrop area to determine quality, and quantity as well as near surface conditions such as oxidation, staining, and surface water conditions would have to be completed before an accurate plan

could be developed for this mine site.

Clifton Mine

The southern-most mine, the Clifton Pit, is also the oldest. It is active on a periodic basis. At the time of this investigation the active mining area was water-filled.

The ore in this pit has a high degree of schistosity texture and it was relatively dark in color. Because of the talc content and texture (discounting apparent color) the majority of this deposit appears to be medium to high grade. There is a major chlorite seam with which mining has to contend with, but it can be selected out. There is some ore immediately available, but in order to extensively mine the proven reserves some development of the highwalls will have to be undertaken.

RESERVES:

Reserves at the Clifton Pit, the Frostbite Mine, and at the Black Bear Mine are good. This review shows that when utilizing Windsor's ore density there is good reproducibility in reserve estimates.

Windsor Mineral reserve estimate for the Clifton Mine correlate very well when reevaluating logs and cross section and using 181 pounds per cubic foot of ore. Windsor's estimate of 575,000 tons can be accepted as proven and probable in place reserves if the assumed density can be proven. These tonnages would have to be reduced to 530,000 tons if 2.25 tons per cubic yard was utilized.

Estimates for the Frostbite Mine by Windsor Minerals include 951,000 tons of proven and probable ore. These reserves can probably be increased to 2.4 million tons (less mined out ore from underground mine) if open pit methods were incorporated at this mine.

Windsor Minerals estimates of 2.5 million tons at the Black Bear Mine may be slightly inflated. In reworking the cross section information, 1.7 million tons can be easily accounted for down to the 1300 foot level. If the reserves from 1300 to 1250 are counted as possible (an additional .3 million tons) there is only a .5 million ton discrepancy. This may be acceptable when considering the drill spacing and the complexity of the deposit.

Although the Kelly prospect was not physically inspected on this trip, the potential for a 1 million ton deposit appears to be good from the cross section and aerial geology data available.

POND INSPECTION:

The sediment pond servicing the Rainbow and Black Bear Mines and the pond servicing the Clifton Mine are adequate. Some changes at the Rainbow/Black Bear pond will have to be made before all storm runoff/mine drainage ponds become federally regulated in 1991. Both ponds are in locations that they could be modified, if need be, to become NEPDES permitted, direct discharge ponds.

SUMMARY:

The Black Bear, the Clifton and the Frostbite Mines are in good shape when considering the stage of mining that they are in. The Black Bear in its relatively early mining stage will need continuing development work to reach its full potential. The Clifton, if it is to become a full-scale, operating mine, will require development work on both the hanging wall in order to go much deeper into the orebody. Development work on the hanging wall at the Argonaut Mine is slated for late 1988. The Frostbite will need surface mine plan drilling completed to determine the feasibility of starting an open pit at this mine site. Although crude availability is not a problem at this time, waste rock removal in two of the active mines is crucial.

In place proven and probable reserves at the Black Bear, Frostbite and Clifton Mine exceed 3.6 million tons (excluding 1 million tons for underground working at the Frostbite). An additional 1 million tons is also available at the Kelly prospect.

Exact determination of exact tonnages of high-, medium-, and low-grade ores is impossible at this time but medium- and high-grade ore probably make up 50 to 75 percent of the ore reserves of Frostbite and Clifton Mine and 10 to 20 percent of the Black Bear Mine.

The grandfathered sediment pond at the Rainbow and Black Bear Mines and the one at the Clifton Mine are small but adequate. Modification (enlargement of pond area) may have to be undertaken prior to 1991 when storm runoff water and mine discharge water become more fully regulated.

Correlation of visual definition of high-grade, medium-grade, and low-grade ore with laboratory analysis (talc-carbonate ratio, GEB, slip characteristics, etc.) needs to be initiated for product control.

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