

CONFIDENTIAL

PLAINTIFF'S
EXHIBIT
CAM-271

VERMONT TALC DUE DILIGENCE

First thoughts, impressions, and concerns:

OVERVIEW

This is an excellent opportunity for Cyprus to get into the talc business in Vermont with operating plants and mines. The environmental impact in this area is becoming tougher due to Vermont fast becoming a resort area not conducive to mining. It would be difficult to start from scratch in this area.

Cyprus can make money with these plants without initially having to spend large amounts of capital. To start, immediate major changes would be a mistake. We must take a disciplined approach with test work and design whatever changes we will make based on the test results. We must initially concentrate on the present equipment to de-bottleneck and optimize production. We must correct the housekeeping, safety, and environmental problems presently visible.

CHESTER MILL

- A. Ore handling system - new in 1980.
 - 1. Poorly maintained.
 - 2. Equipment removed or not operational.
 - a. Dust collection.
 - b. One of the cone crushers.
 - c. Screening system.
 - d. Rotary dryer.
 - e. Three of the reclaim hoppers in covered crude storage building (original system had four automatic hoppers; a loader is now necessary to feed ore to the Roller Mills).
 - 3. Very dirty and noisy - Was told that four houses near the plant had to be steam cleaned in 1987 due to neighbors complaining.
 - 4. Ore was about 25 to 50 percent fines which was very wet and caused plugging in the Roller Mill feed bins.

B. Roller Mills in good condition.

1. Very dirty area indicating dust collection problems.
2. Both Roller Mills have heaters - one electric and one oil fired. Heaters are not being operated. We were told that they were high maintenance.
3. Rest of system (cyclones, dust collectors, etc.) appeared in good condition.

C. Storage (finished product).

1. Six bins - 30 to 35 ton capacity.
2. All transfer by screw conveyor and bucket elevator (good condition).
3. Common recovery for paper bag and bulk shipments. This limits ability to fill bulk rail and bag filling at the same time.

D. Bagging and palletizing system.

1. Three-spout packers.
 - a. Poorly maintained.
 - b. Old equipment.
 - c. Dusty.
 - d. Hand stacking.
2. New system to stack is not operational. Waiting on parts to power rollers on stretch wrap and accumulator line.
3. Have dot matrix bag marking equipment (not installed). Will need to enclose new stacking area and heat to make operational.
4. Very limited finished pallet storage area (two or three truckloads).
5. Only one truck dock with poor docking system.

E. Maintenance and parts.

1. Parts storage disorganized and cluttered.
2. Operating on breakdown maintenance only (no preventive maintenance program).

F. Electrical equipment.

1. Mostly new.
2. Built to support flotation mill; therefore it is oversized. (May be cause for high power costs at Chester because of high demand factor.)

G. Construction projects.

1. Packing system (already discussed).
2. Roller Mill whizzer system to produce V-6 product is complete (\$100M). However, system is not capable of producing the tons required for sales.

H. Hamm Mine.

1. Equipment.
 - a. One loader.
 - b. Two track drills and compressors (only one operational).
 - c. No apparent mine plan.
 - d. In-flow of 200 to 300 gallons of water. Pump now being used will be returned to Omya (borrowed). We will have to supply our own pump.
 - e. Very little stockpile of ore - estimated 2M tons at mine and 3M tons at mill.

I. Operating practices and manpower.

1. Two hourly at mine.
2. Eight hourly at mill (production).
3. Two maintenance.
4. One superintendent and one maintenance foreman.
5. No leadmen or supervisors on second shift.
6. Operators do all quality control checks.
 - a. Screen.
 - b. Viscosity.
7. We were told it is very hard to find hourly labor at Chester.

J. Variable operating costs (average cost for all tons produced - three products) for fourth quarter 1987 as follows:

<u>Product</u>		<u>Cost/Ton</u>	<u>Tonnage</u>
V-7	Bag	\$46.10	1,315
	Bulk	\$31.40	6,710
V-10	Bag	\$43.50	522
	Bulk	\$31.90	880
V-15	Bag	\$39.70	3,400
	Bulk	\$29.30	204

- Average cost all tons = \$36.98.
- Pallet cost not included.
- Fixed costs estimated at \$13.60 per ton.

Summary

The Chester mill is in fair to good condition and can be expected to operate at reasonable levels of availability. The main problems relate to the ore handling, crushing, storage, and recovery of ore to the Rollers Mills. Dust and noise will have to be controlled much better to avoid problems with the town residents that live very close to the mill. On the other hand, in winter and in wet periods, the ore is too wet to handle properly and causes major problems in the crushing system and feeding the Roller Mills.

In the mill, dust collection on the Roller Mills needs to be repaired and maintained. The paper bagging system needs to be modernized and storage for finished goods enlarged to run at capacity.

If it is true, the labor availability could be a major problem if we would want to staff up for a four-shift operation.

Finally, \$100M was spent to install a Roller Mill whizzer in Chester to produce the product V-6 for the plastics industry. This system will not be able to produce the tonnage required, and it is very questionable whether the product would be acceptable to customers. V-6 is now produced in Johnson on a Pebble Mill, but when they switched from Hamm ore to Troy ore the GEB dropped 5 to 10 points causing major quality problems and the loss of most sales. At this time we are unable to estimate what would have to be done to cure the problem.

JOHNSON MILL

The mill has not yet been able to produce at a level to meet sales. Recovery is lower than expected, and quality of finished product has been a problem. The re-grind circuit that J. Godla has been proposing is questionable at best. (He has purchased a mill for \$150M but needs at least another \$1MM to complete.)

The dry end of the mill (jaw crusher through the Roller Mills) for the flotation feed is in terrible condition. It is old and very poorly maintained. The building is 80 years old and is of wood construction. The entire system is in need of immediate replacement; however, it would be very difficult to replace at the present mill site.

The wet end (flotation) is new or in good to excellent condition. However, the design is poor with many bottlenecks and operating restrictions to produce the eight products being sold.

The paper bagging system is old, dusty, noisy, and labor intensive. Finished product storage is very limited.

The tailings storage or disposal area is adequate for only two to four more years of production. They are presently digging out one of the ponds and filling the only space left to store the tailings. They cover the tailings immediately with topsoil to avoid blowing dust. (The ponds will be covered in detail in E. H. Reade's and R. J. Zazenski's reports.) However, the ponds are designed to percolate the water into the ground. Tailings disposal will continue to be a problem which needs to be addressed in any future plans.

The entire plant is littered with junk - spare parts, oil drums, chemicals, motors, and packaging supplies. There are several buildings surrounding the mill that are full of the same materials. They also rent railroad cars to store parts and packaging supplies.

There is a crude inventory located at the plant site, but it is about 1/4 to 1/2 mile by road to the crusher. This inventory includes 9,548 tons of Hamm ore that is high in arsenic and contains 1,000 tons of fines. The rest is

large rock that will have to be crushed before it can be fed to the mill. In any case, the ore cannot be used as long as cosmetic talc is being produced. There are 6,924 tons of Troy ore at the site which can be used, according to local management, if trucking from the mine is curtailed for whatever reason.

Production for the first three months of 1988 was as follows:

	<u>Wet</u>	<u>Dry</u>	<u>Recovery</u>
January	77 tons/day	11 tons/day	28.9%
February	78 days/day	10 tons/day	28.2%
March	80 tons/day	6 tons/day	26.8%

Average cost for all tons is \$105 per ton. This averages about 3.3 tons per hour which is about one-half of what was said that the plant would produce. There are numerous reasons for the low output. We have identified many of these and believe we can correct most of them. However, this will take time for testing and require capital to correct. We feel the flotation system can produce 5 to 6 tons per hour.

- The crushing system and surrounding area are in poor condition and require extensive maintenance.
- Due to fines in the crude, the crushing system is either too dusty or in need of constant attention.
- The crushed crude handling system (conveyors, bucket elevators, bins, etc.) are old and a source of dusty conditions.
- The Vertalc 6 product presently produced from Troy crude is unacceptable to some customers due mostly to the 7 to 8 points lower brightness.
- The flotation talc recovery has been in the 50 to 60% range with an overall recovery from the Troy ore in the 27 to 30% range.
- Higher flotation production can be achieved mostly from improved recovery.

- The filter/dryer systems have been producing 4½ to 5 tons per hour. This area is presently a bottleneck due to fines affecting filtration. The cake moisture content is fluctuating considerably due to fines which limit drying capacities.
- The classifier attached to the dryer system for the production of cosmetic talc is adversely affecting the normal dryer operation.
- The quarantining of cosmetic talc and the subsequent packaging from a common packer raises contamination issues.
- The dried concentrate is used to produce the following products at listed rates:
 - V-700 (6 to 7 tons per hour in #5 Vertical Mill and JS-30).
 - V-300 (2 tons per hour in #4 Vertical Mill).
 - V-200 (1 ton per hour in (#4 Vertical Mill)).
- As seen from previous paragraph, the floated product plant capacity depends on product mix. This is because the same four Vertical Mills are used for all products. Of course, it cannot exceed the concentrate production rate which is presently at 4.5 to 5 tons per hour.
- Four of the five Vertical Mills share feed bin and discharge baghouse which does not allow a lot of flexibility. The fifth Vertical Mill is dedicated entirely to the production of Compacted V-700.
- The Pellet Mill located in the old crushing/grinding building is capable of producing about 3 tons per hour of pellets. The pellets seem friable. Moisture during pellet production is 13 to 15%. Finished product moisture is .1 to .2%.
- The five spout force flow packers at Johnson are used to bag all products except for compacted. This includes V-6 and stearate-treated talc. Contamination problems as well as bag weight problems (± 1 lb.) could be a source of customer complaints.
- The flotation tailings are classified in a screw type classifier. The fines are discharged in a pond while the coarse is piled in the area using a front end loader.

- The tailings water percolates through the pond to the water table. No tailings water analysis is performed on a routine basis. Vermont Talc personnel feel that since it is "grandfathered" they don't need to analyze what is impounded.
- The large tailings pond has been filled. For this reason they are discharging in a smaller pond while they are excavating the large pond.
- The new dryer baghouse discharge permit has been verbally approved.
- Bacteria and arsenic analyses are performed at Proctor.
- The brightness of the floated products has dropped by 2 to 4 points since switching to Troy crude.
- The equipment and operating conditions in the crushing/dry grinding building (Eastern Magnesia building) are poor and in need of attention.
- Some baghouse discharges and the recycling of rejected products are causing operating problems, especially in filtration.
- Improving flotation recovery and increasing the filter/dryer throughput can result in considerable savings (in the range of 10 to 15%).