STRATEGIC PLANNING - ASBESTOS BUSINESS

RECORD OF INITIAL MEETINGS HELD ON MAY 2, 3, 4, 1979

Industry Definition

Calidria asbestos is sold in the U.S., Japanese and European markets. In some applications it competes with other asbestos products and in other applications it competes with other asbestos and non-asbestos products. This generalization forms the basis for the following industry definition:

Those enterprises engaged in the worldwide production of short fiber asbestos and/or viscosity control agents.

Business Definition

The mining, milling, chemical treatment and worldwide marketing of high quality short fiber asbestos.

Industry Categorization

1. The market in which UCC high quality short fiber asbestos competes with other short fiber asbestos. The competitive sources are: (a) California asbestos, similar to UCC asbestos, and produced by Atlas; and (b) Canadian short fiber asbestos produced in the recovery of long fiber asbestos. The Canadian industry regards short fiber as a by-product and not all of it is currently recovered.

2. The market in which UCC high quality short fiber asbestos competes with other short fiber asbestos and non-asbestos products as viscosity control agents.

INDUSTRY PROFILE

TIME FRAME: 10 YEARS

PROSPECTS FOR VOLUME GROWTH & EARNINGS QUALITY

INDUSTRY ASSESSMENT

CRITICAL ITEM		INDUSTRY ASSESSMENT	HIGH	MODERATE	LOW
X √	1.	VOLUME GROWTH	X	√	
	2.	POTENTIAL FOR UNFORECAST VOL. GROWTH		X	√
		DECLINE	√	X	
X √	3.	VULNERABILITY TO SUBSTITUTION/OBSOLESCENCE	X	√	
X √	4.	COMPETITOR: NO. / : DIVERSITY	√X		
√	5.	PRICING RESPONSE TO OVERCAPACITY	√X		
	6.	INDUSTRY OR MARKET INDUCED CYCLICALITY	√X		
	7.	PRODUCT LINE BREADTH	√	X	
	8.	A. SHARE DISTRIBUTION / B. SHARE STABILITY		√X	
	9.	RATE OF CHANGE OF TECHNOLOGY		X	√
X	10.	BASIS OF PRODUCT COMPETITION	X		√
X √	11.	CUSTOMER: NO. / : MIX	√X		
	12.	RESOURCE AVAILABILITY			√X
√	13.	GOVERNMENT INTERVENTION		X	√
	14.	BARRIERS TO ENTRY	√X		

Industry Profile

The time frame for the industry evaluation was set at 10 years on the basis that three to five years will elapse before the health problem is fully developed and thereafter enough time will be required to consider an expansion and its consequences.

Item 1. Volume growth in the asbestos (√) applications is estimated at 3% per year over the evaluation time frame, while the growth rate of non-asbestos (X) applications is estimated at 8-10% per year.

Item 2. The potential for unforecasted growth or decline is considered in the context that health and government regulations are considered in special items. On this basis the other prospects for unforecasted growth or decline in either category is not considered high.

Item 3. Vulnerability to Substitution. Much effort has been expended to develop a substitute for asbestos in both categories, but asbestos is still preferred.

Item 4. Competition mix and number. The competitors are:

Asbestos Category	Non-Asbestos Category
Cary, Canadian	National Lead
Johns-Manville	Cabot
Atlas (California)	De Gussa
Bell	Baker Caster Oil
	Wacker (Europe)

A favorable rating is based on few competitors who exhibit discipline in the marketplace and in some cases the geographic locations impose freight charges which are limiting. Also, UCC short fiber is of higher quality than other short fiber asbestos products.

Item 5. Pricing response to over capacity. In both categories, producers reduce capacity in periods of low demands.

Item 6. Cyclicality. Moderate cyclicality is reduced by construction industry cycles. A consistent strike pattern in Canadian operations has worked in UCC's favor. When the market expands production increases to accommodate the expansion.

Item 7. Product Line Breadth. In the asbestos category there is only one product -- short fiber asbestos and UCC enjoys a quality edge. In the non-asbestos category UCC short fiber competes with silica and organic treated products.

Item 8. Market Distribution/Share Stability. The market distribution in the asbestos category is:

	U.S.A.		JAPAN		TOTAL	
	Tons	% Total	Tons	% Share	Tons	% Share
UCC	24,600	19	7,400	15	32,000	18
Johns-Manville	33,000	25	15,000	35	48,000	27
Cary	46,000	35	22,600	50	68,600	39
Atlas	27,400	21	0	0	27,400	16
Total	131,000	100	45,000	100	176,000	100

In the non-asbestos category market distribution is:

	U.S.A.	Market Share, % Japan	Europe	Total
UCC	15	25	19	15
DeGussa	25	70	70	40
Cabot	45	2	5	40
National Lead	10	2	3	3
Baker	5	1	3	2

In both categories the industries are mature and market share is stable.

Item 9. Rate of Technology Change. The level of technical effort in the asbestos category is low. Any increase in effort is likely to be to improve the quality of competitive product and hence unfavorable. The level of technical effort in the non-asbestos category is higher and asbestos is still used.

Item 10. Basis of Competition. Pricing is the downward factor. Asbestos offers some advantages. This is a minor factor in the asbestos category and more important in the non-asbestos category.

Item 11. Customer mix and number is considered favorable. (See item 4.)

Item 12. Recourse Availability. Short fiber asbestos is plentiful. Competitive products in the non-asbestos category are plentiful.

Item 13. Government Intervention. Generally, asbestos is receiving much unfavorable attention and government regulation of its use is a negative factor in a customer consideration, somewhat less so in the non-asbestos category than in the asbestos category.

Item 14. Barriers to Entry. Considered high because of asbestos regulation and some uncertainty regarding the future. In the non-asbestos category the technical competence and high capital investment for competitive products are barriers.

Item 15. Customer Value Added Component. Rated low in the asbestos category and moderate in the non-asbestos category.

Item 16. Not applicable.

Item 17. Government Mandated Declines. In view of all the attention focused on the health factor concerning asbestos, the possibility of government action must be recognized. The pressure is more likely to be in the asbestos rather than the non-asbestos category because in the latter category asbestos is handled well and is well encapsulated in the final product.

Item 18. Activist Influence. The influence of activists in a highly visible controversy cannot be discounted and it will be unfavorable. Their attention will be directed toward the asbestos rather than the non-asbestos category.

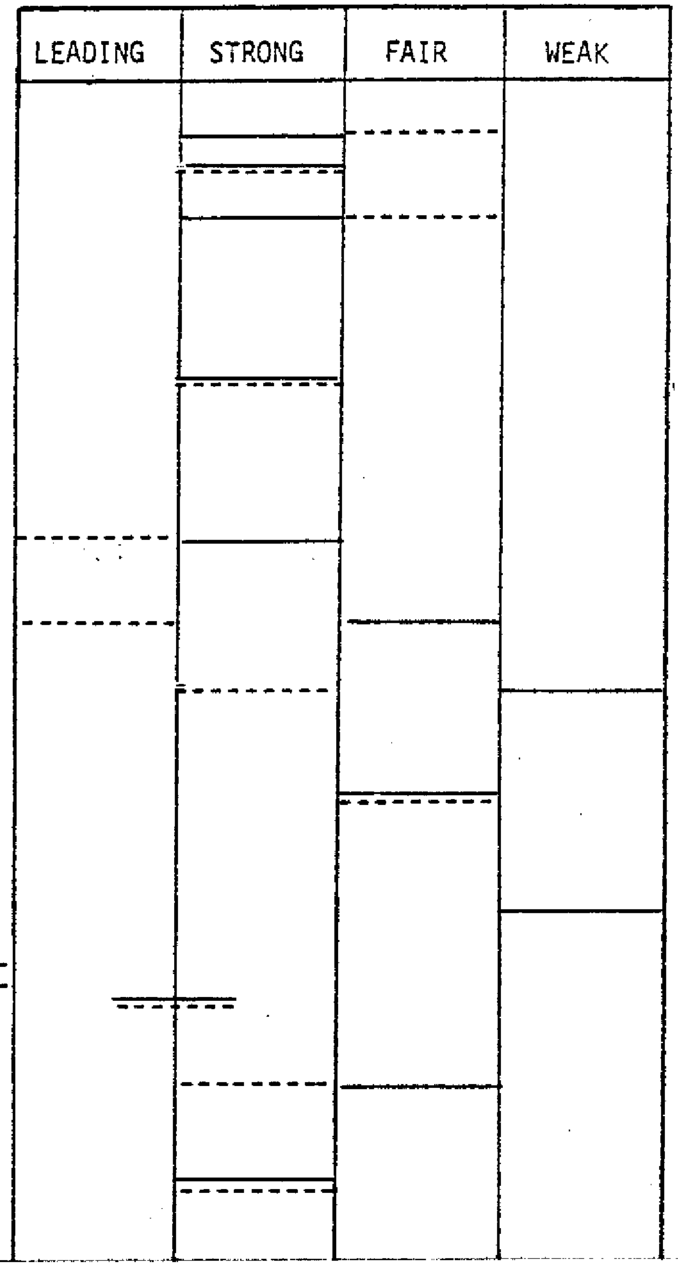
Item 19. Third Party Liability. UCC was not involved in the type of asbestos applications now subject to heavy third party liability action. UCC has been named in a number of actions but so far has been excused once non-participation is recognized. All of this activity relates to the asbestos category.

UCC PRESENT

COMPETITIVE POSITION PROFILE

CRITICAL ITEM

1. MARKET SHARE
1A. CHANGE
2. PRICE LEADERSHIP
3. PROTECTED POSITION N.A.
4. PRODUCT LINE BREADTH
5. BRAND NAME N.A.
6. BREADTH/CUSTOMER BASE
7. TOTAL COST POSITION
8. SPECIAL BUSINESS RELATIONSHIPS
9. CAPACITY & LOCATION OF PRODUCTION FACILITIES
10. DEGREE OF BACKWARD/FORWARD INTEGRATION FORWARD N.A. ---- BACKWARD N.A. ___ AND ----
11. TECHNOLOGY POSITION
12. MANAGEMENT RISK TAKING
13. MANAGEMENT RESPONSIVENESS TO EXTERNAL ENVIRONMENT



UCC Competitive Position Profile

Items 1, 1A. Market Share and Market Change (principally U.S.A.). Rated strong in the asbestos category because of a quality product. Fair in the non-asbestos because competition products do not have a strong health factor as does asbestos.

Item 2. Price Leadership. UCC is independent in the asbestos category and can exercize leadership. In the non-asbestos category UCC must offer a price advantage to the customer to offset the health factor.

Item 3. Not applicable.

Item 4. Product Line Breadth. In both categories offers products to serve a diverse number of applications and customers.

Item 5. Not applicable.

Item 6. Breadth of Customer Base. In the asbestos category, UCC serves many customers for many uses but Johns-Manville has the same capability. In the non-asbestos category, UCC matches every use of competitive products plus some that competitive products cannot serve.

Item 7. Total Cost Position. Leading in the non-asbestos category because UCC has position in ore and good costs, whereas competitors purchase intermediate and are, in effect, converters. In the asbestos category, UCC's position is fair because competitive short fiber asbestos is regarded as a by-product.

Item 8. Special Business Relationship. Rated strong in the non-asbestos category because W.R. Grace is a good agent with access to many markets. Rated weak in the asbestos area because UCC has no special business relationship.

Item 11. Technology Position. Rated very strong in both categories. UCC business was developed through strong technical position and is maintained by good technical service.

Item 12. Management Risk Taking. Rated strong in the non-asbestos category because the chemical treatment facility was expanded to meet a growing market. Rated fair in the asbestos category because the plant has not been expanded to meet peak demand.

Item 13. Management Responsiveness to External Environment. Rated strong in both categories on the basis of response to the health factors and liability.

Item 14. Resource Sufficiency. Rated leading/strong in the non-asbestos category because of ore position whereas competitors are dependent upon other suppliers. Rated strong in the asbestos category because the ore deposit is large and low cost. Competitors have similar positions.

Item 15. Product Quality. Rated leading in both categories because of technical approach to product quality.

Item 16. Customer Service/Reliable Supplier. Rated leading in both categories. The asbestos business has been built on technology and customer service.

Item 17. Health Factor. While the health factor is a serious issue in the asbestos category, it is not a competitive factor since all suppliers would be affected by any adverse development. In the non-asbestos category the possibility of asbestos being discontinued in favor of non-asbestos products cannot be dismissed.

Key Competitive Factors

	Asbestos Category	Non-Asbestos Category
Market Share	X	
Product Line Breadth	X	X
Breadth of Customer Base	X	X
Total Cost Position	X	X
Technology Position	X	X
Product Quality	X	X
Customer Service/Dependable Suppliers	X	
Health Factor		X

Assessment of Principal Competitors Relative to Key Competitive Factors

Asbestos Category

	UCC	Carey	Johns-Manville	Atlas
Market Share	Strong	Strong	Strong	Strong
Product Line Breadth	Strong	Strong/ Fair	Strong	Weak
Breadth Customer Base	Strong	Strong	Strong	Weak
Total Cost Position	Fair	Strong	Leading/ Strong	Fair
Technical Position	Leading/ Strong	Weak	Strong	Weak
Product Quality	Leading	Strong/ Fair	Fair	Strong
Customer Service/Dependable Supplier	Leading	Weak	Strong	Weak
Overall	Leading/ Strong	Strong/ Fair	Strong	Fair/ Weak
Rank	1	3	2	4

Non-Asbestos Category

	UCC	Natl. Lead	Cabot	DeGussa	Baker
Product Line Breadth	Strong	Fair/ Weak	Fair	Fair	Fair/ Weak
Breadth of Customer Base	Leading	Fair	Strong	Strong	Fair
Total Cost Position	Leading	Strong	Strong	Strong	Strong
Technical Position	Leading/ Strong	Strong	Strong	Strong	Fair
Product Quality	Leading	Strong	Strong	Strong	Strong
Health Factor	Weak	Strong	Strong	Strong	Strong
Overall	Strong/(1) Fair	Strong/ Fair	Strong	Strong/ Fair	Strong/ Fair
Rank	2	2	1	2	2

(1)The health factor was weighted at 4 to 1 against other factors in the overall rating for UCC.

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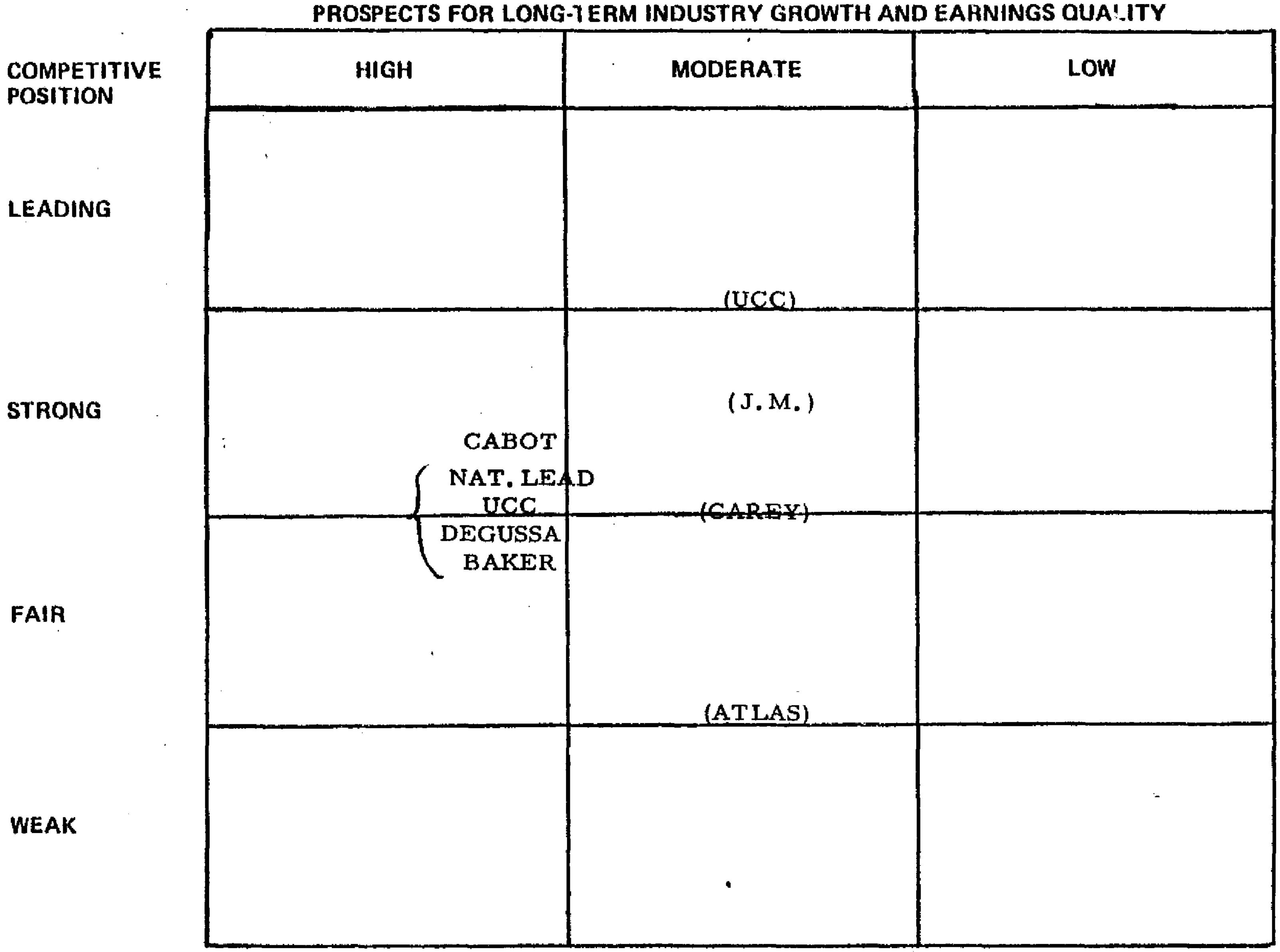


( ) ASBESTOS CATEGORY

NON-ASBESTOS CATEGORY

Key External Assumptions

Volume Growth

1. 3% per year for asbestos category
2. 8% per year for non-asbestos category

Government

1. There is no change in depletion allowance.
2. Third party liability due to prior exposure is $________ during the plan period.
3. Third party liability due to present and future exposure is minimal.
4. There are no widespread laws or mandatory substitutions.
5. The OSHA TLV is no more restrictive than 1.0 fiber per CC TWA.
6. Other regulations (EPA, MSHA, etc.) are not substantially more stringent than at present.
7. There is no impact due to "retroactive" legislation.

Competition

1. There is no new major exploitation of the Coalinga deposit.
2. The Russians do not enter the asbestos category market with a short fiber product.
3. That competitors do not reduce the price of their product in the non-asbestos category market.
4. That other short fiber producers do not increase their marketing effort in the asbestos category market.

Customers

1. There is no significant unexpected impact on the asbestos category market due to customer reaction to the health factor.

2. That the apprehension of customers in the non-asbestos category stabilize for 2-3 years, then gradually decline.

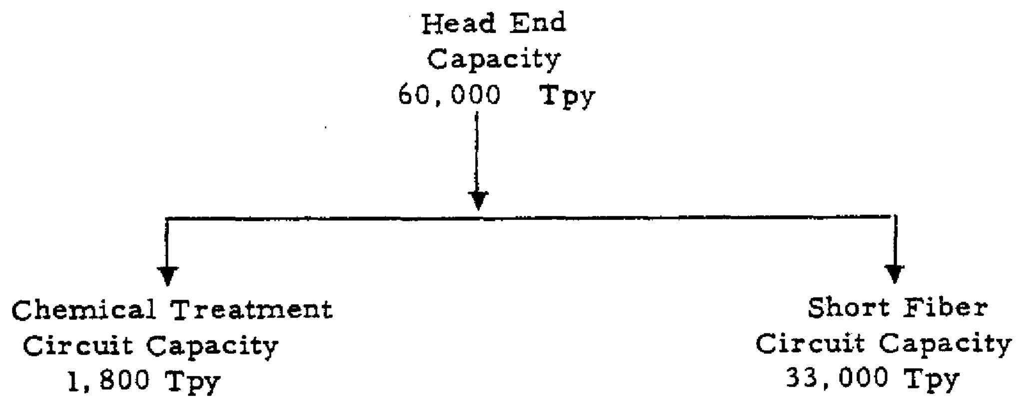
Technology

1. Research will not show asbestos to be more hazardous than current thinking, or that "Calidria" asbestos is more hazardous than other short fiber asbestos.

2. There will be no major breakthrough regarding the development of substitutes for short fiber asbestos or improved performance non-asbestos viscosity control agents.

Generic Strategy Development

A simplified capacity flow sheet serves to illustrate the capabilities of the present mill:



Currently, the product sold in the non-asbestos category consists of approximately 1,400 Tpy which is processed through the chemical treatment circuit plus approximately 900 Tpy of product which is processed through the short fiber circuit. At the present time the chemical treatment circuit has about 400 Tpy excess capacity and the short fiber circuit nearly at capacity.

In considering generic strategy development, it was recognized that asbestos will be subject to intense scrutiny from a health viewpoint over the next 3 to 5 years. It is anticipated that early in this period the present atmosphere will give way and an objective analysis will determine the use of asbestos in the future.

The recommended generic strategies are:

1. Hesitation. This is regarded as a base case in which sales in both the asbestos and non-asbestos categories expand at the projected growth rates to the level of present plant capacities. Thereafter, the business would operate at capacity and product mix in both categories would be optimized.

2. Market Penetration - A. There appears to be an opportunity to increase sales in the asbestos category dramatically. In order to take advantage of the opportunity the capacity of the short fiber circuit must be increased by about 25,000 tpy at an estimated cost of $6 million. Increased technical support would be required to serve the enlarged market. It is probable that price reductions would be required to achieve the objective. The expansion would be started as soon as possible (obviously before the health issue is resolved) and be available for operation on January 1, 1981. Sales of product in the non-asbestos category would grow to the capacity limitation as in the hesitation case.

3. Market Penetration - B. The capacity of the chemical treatment circuit would be increased to 3,600 tpy to accommodate a market which is growing at 8% per year. Present capacity will be limiting at the end of 1982 and therefore production from the expanded circuit should be available in January 1, 1983. The short fiber circuit is currently at capacity and in balance with sales. Therefore sales of

short fiber circuit product to the asbestos category business would decrease each year by the amount that this product is diverted to the more profitable non-asbestos category market.

4. Abandonment. The rationale for this strategy is that the health issue will be overwhelming and have a serious adverse effect on Union Carbide's image. In such an environment the return to UCC may not be enough to justify the effort and the risk. There are parties who may be interested in purchasing the assets of a high quality business with unique technology and an excellent ore reserve.