PLAINTIFF'S EXHIBIT

UC-2390

UNION CARBIDE

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December 23, 1974

Current Status of Plans for Expanding King City Asbestos Plant

The purpose of this memorandum is to update my earlier communication of June 19, 1974, on the planning for a plant expansion at King City. During the interim, parameters relating to this proposed expansion have been further defined as summarized below:

1. Market projections covering the period 1974 through 1980 were developed and issued by the Calidria Sales Group. (Reference 1) The forecasted sales mix for 1979 was very similar to the optimum mix presented in my June 19, 1974, memo, with the exception that a more conservative estimate of RG-244 sales was developed. Consequently, Engineering was advised to assume in further plant expansion studies that the present RG-244 Phase II expansion could handle forecasted near-term market needs if augmented by limited future working budget expenditures. (Reference 2)

2. Based upon the assumed product mix, Engineering developed a concept for expanding the King City plant to 60,000 T/yr. which would use the existing mill circuit for standard and super-standard grade products and require construction of a new building and facility for high purity products as well as specialty items such as RG-600. (Reference 3)

3. Cost estimates for operation at 60,000 T/yr. and 110,000 T/yr. levels were developed by plant personnel and these provided the bases for financial analyses to be subsequently discussed. (Reference 4)

4. In view of the fact that capital costs were escalating at an accelerating rate and market risks were high, it was decided to defer further consideration of a 110,000 T/yr. operating rate and focus on the more conservative 60,000 T/yr. rate. On this basis, the preliminary engineering estimate for the plant expansion was $8,670 MM, of which about $1.2 MM was attributable to RG-600 processing. This estimate for expansion to 60,000 T/yr. far exceeds the $2.4 MM which was being carried in the long-range plan.

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Assuming that engineering commenced on 1-75, expanded plant operation was predicted to begin on 1-77. (Reference 5)

5. The financial impact of the proposed plant expansion was analyzed on two different bases viz.

Case 1 - Assuming the sales estimate provided by Calidria Marketing (Reference 1) and extending the 1980 projection unaltered through 1985.

Case 2 - Assuming the sales estimate developed by W. C. Thurber (Reference 6) for the 1975 LRP and extending the 1979 projection unaltered through 1985.

Case II represents a much more conservative product mix and assumes a maximum of 14 M tons of High Purity and 6 M tons of RG-600 - both high margin products. In contrast, Case I assumed 20 M tons of High Purity and 12 M tons of RG-600. As can be seen below, the projected financial performance is highly sensitive to these product mix assumptions.

	Financial Performance 1975 LRP	Incremental Performance Versus 1975 Average Year: Mid 1976-1985	
		Case I	Case II
Sales	$ 5.4M	$ 8.8M	$ 4.3M
Net Income	$ 0.7M	$ 3.4M	$ 0.8M
%ROA	14.5%	54.9%	14.0%
%ROI	-	64.3%	15.9%
NPV	-	$14.8M	$ 0.5M

It is apparent that the quality of earnings from the expanded plant with the conservative product mix (Case II) is no better than the base case although in total dollars the net income is doubled. A dramatic improvement in earnings quality is possible if a Case I mix can be realized.

6. Attempts to acquire additional lands around the plant to support the expansion and provide a new area for tailings disposal have not been successful. Owners of the Sorenson property (Tract B) which we had sought for a tailings impound have refused to lease or sell. Negotiations are still in progress regarding the so-called Tract C property which would provide about 18 acres of additional land along the Southern Pacific tracks.

Summary

In light of the foregoing and other related considerations, expansion of the main circuit has

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been deferred to the 1976-1977 time period. Specific factors contributing to this decision include the following:

A. Capital funds required for the expansion were substantially greater than those available in the 1975 budget.

B. The financial success of the expansion is particularly sensitive to RG-600 sales where we have yet to establish a market.

C. The 1974 downturn in Union Carbide's asbestos business suggests that highest priority should be given to getting the existing operation back on track.

D. The impact of toxicology considerations needs further assessment, especially with regard to the extent which OSHA revises existing regulations.

We will continue to assess the King City plant expansion question during 1975, with the following critical issues clearly defined:

1. As new OSHA regulations are promulgated, evaluate the impact on sales forecasts.

2. Through continuing market development activities, provide a better definition of future RG-600 markets.

3. Return the existing asbestos business at least to 1973 performance levels, (eg. 11% ROA, 9% sales return).

W. C. Thurber

WCT/es

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References

1. J. L. Myers' memorandum July 26, 1974 - "King City Plant Expansion" with attachments "Market Projections to 1980" and "Asbestos and Health".

2. W. C. Thurber's memorandum July 18, 1974 - "King City Plant Expansion".

3. V. D. Holt's memorandum to O. J. Malacarne July 2, 1974 - "King City Plant Expansion" 936-1148.

4. F. H. Larrison's memorandum August 14, 1974.

5. V. D. Holt's memorandum to R. J Klotzbach September 13, 1974 - "King City Plant Expansion Phase I" 936-1148.

6. W. C. Thurber's memorandum to J. W. Rawlings July 2, 1974 - "Assumptions for Revised Long Range Business Plan - 1975 through 1979".

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a attachment

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July 18, 1974

King City Plant Expansion

Reference is made to my memorandum of June 19, 1974 regarding the King City plant expansion. For the 60,000 T/yr. case (see Table II) I had indicated a most probable requirement for RG-244 of 3,000 T/yr. and an optimum requirement of 5,000 T/yr. Marketing has now had the opportunity to review these guesstimates and feels that they are overly optimistic. Their considered projection indicates that a capacity of 2,000 T/yr. will handle our requirements through 1977 and that a capacity of 3,000 T/yr. would be required to meet 1980 sales estimates.

In view of these estimates, I would suggest that the most logical course of action at this time would be to consider an initial plant expansion wherein no additional RG-244 capacity was provided beyond that already scheduled as part of the Phase II activity now underway. At a later date we can separately address the need for additional RG-244 capacity based upon demonstrative capabilities of the installed Phase II equipment and continued growth of product sales over the next three or four years. Hopefully, the modest incremental capacity required (i.e. 1,000 T/yr.) could be handled as a future working budget item. Therefore, the only requirement at this time would seem to be to provide space in the expanded plant for additional RG-244 equipment which would need to be added at a later date to bring the circuit to 3,000 T/yr. in 1980.

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June 19, 1974

King City Plant Expansion

The Asbestos SPU is committed in 1974 to developing, documenting and bringing to capital budget status plans for a major expansion of the business. In order to provide proper perspective for the Management Committee on Union Carbide's Asbestos Business prior to (or perhaps concurrent with) requesting approval of a CBP for plant expansion, it will be necessary to display our strategic plans regarding asbestos. This memorandum provides a status report on the work completed to date and sets forth a schedule and further guidelines for fulfilling this commitment. Status of pertinent developments is as follows:

1. Studies conducted at King City by W. C. Puris et al in January and February demonstrated that the capacity of the existing rock-fiber circuit is 60,000 T/yr. of standard grade product. By way of comparison, 1974 total plant production based by five months actual experience is 33,000 tons. (References 1,2,3 & 9)

2. A survey of markets for short fiber crysotile was completed in April, 1974, by an outside consultant supported by the Asbestos Sales group. (Reference 8) This study concentrated on current and clearly identified future markets for Group 7 fibers, with especial emphasis on domestic consumption. RG-244 sales opportunities were not addressed. Pertinent results of this survey are included in Table I.

3. The Asbestos Sales group is in the process of translating the results of the market survey into specific quantified opportunities for Calidria products. Preliminary results are available which suggest a 1980 potential market of at least 110M tons. A formal report should be completed by July 1, 1974.

4. Preliminary discussions have been held with PG&E establishing the cost and availability of additional natural gas to support expanded operations at King City. (Reference 4)

5. The question of tailings disposal has been examined in some detail. If we continue to dump at the current location, filling the existing gully only to a more

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or less level contour (i.e. no tailings pile) which could be easily stabilized, land is available to handle about 180,000 tons of production, assuming 60% product recovery from ore. Based upon disposal of the existing tailings pile immediately adjacent to the plant tailings conveyor and using estimated yearly production levels from the 1973 Long Range Business Plan, available land would be exhausted by early 1978. Alternatively, a tailings pile could be created using much of the land behind the plant. Assuming that this approach was environmentally and politically acceptable, we could handle from 832M to 3,876M tons of production, depending upon the amount of land committed to this approach. A more desirable approach over the long term would be to acquire some land southeast of the existing property which contains a large natural depression ideally suited for tailings disposal. Engineering estimates that this land could handle tailings generated over at least a thirty-year period. Tailings could either be pumped or trammed from the mill to this new dump. (References 5, 6 & 7)

6. Concomitant with #5 above, inquiries have been initiated with a view toward acquiring that land containing the large natural depression for tailings disposal. Two tracts are involved. Tract A owned by the Johnson family is likely to be unavailable since certain covenants in a deed of sale for adjoining lands to a vineyard require that use of unsold land be confined to agricultural or grazing purposes. Since this tract includes only the northern-most end of the depression, we could do without by building a tailings dam across the depression on the large adjacent Tract B.

   Tract B , owned by the Sorenson family, contains most of the land of interest (approx. 112 acres). This land is held for tax purposes in an agricultural preserve and discussions with the Monterey County Land Board indicate that obtaining release and rezoning of such land is without precedent. The possibility does exist that we could obtain a long-term lease on Tract B from the Sorenson family and a special land use permit from the County for tailings disposal. This possibility is being explored currently.

   We are also investigating the possibility of acquiring about 18 acres (Tract C) immediately south of the mill side along the Southern Pacific railroad tracks. This tract would provide additional bulk car loading space and area for storage bins. The land has been appraised and the next step is for Union Carbide to make a positive offer to the owners. This will probably be in the form of a five-year lease with option to purchase contingent upon rezoning, etc. (References 10, 11, 12, 13 & 14)

7. Extensive cost studies documenting the merits of hydraulically transporting asbestos from the mine to the mill site were made in 1964. A quick and dirty update of

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these studies was carried out in February. This update suggests that a pipeline is favored at 180,000 tons per year product rate but is not economical at 100,000T/yr. In addition, the pipeline appears to be more energy intensive than truck haulage. For these reasons, hydraulic transportation will not be further considered now. (Reference 15)

Based upon the information generated to date, it appears that the next step is to develop preliminary capital and operating cost estimates for two sizes of plants. The first iteration would be to expand the existing plant up to the capacity of the rock fiber circuit (i.e. 60,000 T/yr. standard grade). In this context the ramifications of two product mixes should be examined, viz. (1) a "most probable" mix where about 25% of the output is standard grade material and (2) an "optimum" mix where most of the output is super standard and high purity product. Details on mix are included in Table II. It is recognized that nominal 60,000 T/yr. rate applies to standard grade product and that the capacity would perforce be down-graded as more higher quality products are produced. Features included in this plant are (1) expanded RG-244 capacity to 3 - 5 T/yr. versus the 2.1 T/yr. available when the Phase II expansion is completed; (2) ability to make DMBP-treated product (RG-600) at a rate of 12 T/yr., and (3) space to add other treatment equipment for acid leaching, etc.

The second iteration is a 110MT/yr. plant (50MT/yr. standard grade and 60MT/yr. super standard and high purity). Conceptually this might involve producing a nominal 60MT/yr. of high quality products in the present plant as expanded and 50MT/yr. standard grade products in an additional new plant. Such an approach would offer the possibility of a two-step expansion (i.e. from 35 to 60 T/yr. now and from 60 to 110 T/yr. later). Desirable aspects of a two-step expansion include:

1. Less capital required in the near term;

2. Reduced exposure to negative impact from unfavorable changes in asbestos regulations;

3. Hedge against non-asbestos floor tile making major inroads into existing tile market.

Summarizing then the following cases should be examined:

Case I — Expand plant to capacity of rock-fiber circuit assuming "most probable" product mix in Table II.

Case IA — Same as Case I but with "optimum" product mix from Table II.

Case II — Case IA implemented in 1975 followed by addition of 50 T/yr. standard grade capacity in 1978.

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Case III Expand the plant to 110,000 T/yr. capacity immediately.

Milestones

July 1, 1974	Complete market analysis	J. L. Myers
July 15, 1974	Provide year-by-year breakdown of sales by product mix at levels at 60M and 110MT/yr. through 1980	J. L. Myers
August 1, 1974	Prepare assumptions for operating cost estimates	O. J. Malacarne/ F. H. Larrison/ H. P. Cobb, Jr.
August 15, 1974	Complete preliminary capital costs estimates and schedule for expanded plants sized at 60M and 110MT/yr.	O. J. Malacarne
September 1, 1974	Complete preliminary operating cost estimates for expanded plants	O. J. Malacarne/ F. H. Larrison
September 13, 1974	Complete financial analysis of Asbestos Business based upon above operating and capital costs	H. P. Cobb, Jr./ W. C. Thurber
September 18, 1974	Project Review	All Concerned
September 25, 1974	Initiate scope engineering, assuming favorable project economics	O. J. Malacarne
November 25, 1974	Complete scope engineering package	O. J. Malacarne
December 15, 1974	Present strategic plans and CBP to Management Committee	W. C. Thurber/ J. W. Rawlings
January 1, 1975	Initiate King City Plant Expansion	

Alternate Schedule

October 15, 1974	Present strategic plans to Management Committee	W. C. Thurber/ J. W. Rawlings
December 15, 1974	Submit CBP on expanded plant to Management Committee	W. C. Thurber/ J. W. Rawlings

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I would appreciate any comments which you may have on these guidelines and schedules.

W. C. Thurber

WCT:es
Attachments - 2

References:

1. O. J. Malacarne memorandum December 19, 1973, Plant Expansion - King City - Phase I (935-1148).

2. N. L. Grauerholz Trip Report February 4, 1974, Visit to King City.

3. O. J. Malacarne, et al, Trip Report February 6, 1974, Trip Report No. 74-T-2.

4. A. K. Seefeldt (PG&E) letter to F. H. Larrison April 1, 1974.

5. R. O. Marsten memorandum February 4, 1974, Tailings.

6. R. O. Marsten memorandum January 14, 1974, Tailings.

7. O. J. Malacarne memorandum January 3, 1974 - King City Tailings - Recommended Site (935-1148).

8. G. Weihs "Crysotile Asbestos Market Analysis" Group 7 (Shorts) April, 1974.

9. W. C. Paris report "Production Rate Tests at the King City Plant" February, 1974.

10. C. P. Martin memorandum to W. C. Thurber February 13, 1974, Land Acquisition King City, California.

11. C. P. Martin memorandum to W. C. Thurber April 17, 1974, Land Acquisition King City, California, Appraisal - Tract C.

12. C. P. Martin memorandum to P. J. Morgan March 29, 1974, Land Acquisition King City, California - Tract A.

13. C. P. Martin memorandum to W. C. Thurber March 21, 1974, Land Acquisition King City, California.

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14. C. P. Martin memorandum to W. C. Thurber February 27, 1974, Land Acquisition King City, California.

15. T. J. Kagetsu memorandum to W. C. Thurber February 14, 1974, Hydraulic Transportation of Asbestos 935-3016.

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