JAS - 6451

Monsanto

FROM (NAME & LOCATION): W. M. Lumb (6097) Corporate Engineering - G2WA

DATE: December 5, 1975

cc: D. W. Caldwell-G2WC
C. P. Orr -G2WD

SUBJECT: Santosol Dielectric - CEA 3023
Evaluation Cost Estimates

REFERENCE:

TO: J. E. Downes - G2WA
H. E. Gibbs - W1A
A. J. Koenig - B2SK
R. A. Pohl - B2SB
D. Wood - B2SD

The attached table shows the evaluation cost estimates developed for the three major cases for capacitor and transformer fluids. We have also included a fourth case ("D") which initially appeared to offer some cost advantages over the other cases.

The Table shows the total new capital dollars required for each process (S-100, MIPB, LD, etc) at Delaware River and Krummrich. The total dollars for each unit includes the cost of facilities specifically required for a particular process as well as part of the cost of "shared" equipment and utilities. For this reason, deletion of a process unit usually does not reduce costs by the entire amount of capital shown as the cost of the unit.

Each site will require a utility expansion of $450K if a manufacturing unit is installed. The $450K primarily includes a "minimum size" (2000 GPM) cooling tower which is adequate to supply all the new process units. Case A at WGK includes only one utility expansion (cooling tower) but Case B includes a cooling tower at AGK and at DR. The Delaware River cooling tower therefore is only about 25% loaded.

Case D is similar to Case C except that Case D includes only one reactor for both S-100 and MIPB. This reduces the production capacity to about 75% of the base rate. Case C has two glass reactors and can produce material of the base rate.

The comparative costs of the different process units are affected by the amount of existing equipment available as well as the degree of equipment and utility "sharing" that is possible. For example, the S-100 facilities at D.R. cost more in Case B than in Case C because "B" cannot share utilities or equipment with the other units at WGK. In another example, the MIPB facilities in Cases A and B cost less than in Cases C and D primarily because WGK has a large amount of equipment available for use in the manufacture of MIPB. And finally, the MCS 1839

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facilities at WGK cost less in Cases A and B than in Cases C and D because MCS 1839 can share equipment with MIPB. Cases A and B have MIPB at WGK but Cases C and D manufacture MIPB at Delaware River.

The future requirements for S-100 appear to be somewhat questionable. The S-100 unit in Case B is the only new process at Delaware River and obviously can be deferred without affecting the other units. The Case A S-100 facilities at WGK are integrated to some extent with the other new units at WGK. However, S-100 could be deferred and added at a later date by providing capacity in the equipment commonly used with the other process units. This would reduce the cost of Case A by about $1,900K.

The costs do not include funds for waste disposal but we are working with the environmental control group to develop waste handling information.

The costs developed here are based upon preliminary process information available and can significantly change as detailed information is developed from Research.

A meeting is scheduled at 8:30 AM on December 8 in B-291 to discuss these costs and other information required for the economic evaluations.

W. M. Lumb

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TABLE 1

SANTOSOL DIELECTRIC-CEA 3023

CASE EVALUATIONS

DESCRIP.	CAPACITY	CAPITAL $K A	B	C	D
S-100	(14 M PPY)	2160 (WGK)	1950 (DR)	1325 (DR)	675 (DR)*
MIPB	(11 M PPY)	1330 (WGK)	1450 (WGK)	3130 (DR)	3175 (DR)*
TXS	(3 M PPY)	3900 (WGK)	3980 (WGK)	4035 (WGK)	4035 (WGK)
LD	(3 M PPY)	610 (WGK)	630 (WGK)	645 (WGK)	645 (WGK)
MCS 1839	(6 M PPY)	650 (WGK)	690 (WGK)	920 (WGK)	920 (WGK)
CAPITAL TOTAL $K		8650	8700	10055	9450
EXPENSE TOTAL $K		1400	1300	1300	1380

*

a. S-100 and MIPB rates are 9 and 11 MPPY respectively

b. Each site includes a $450K utility expansion

c. Costs are ± 25%

d. Expense costs include about $320K for dismantling, relocation and contamination of Aroclor area at WGK.

e. Costs do not include capital for waste disposal.

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ANNISTON POLYPHENYL DEPARTMENT

Capacity 90M lbs/year

Current Requirements ca. 37M lbs/year

Capital (M&E): Gross $3,024M
Net $ 390M

Fixed & Budgeted Costs $ 2M/year
Total Mfg. Budget $ 8M/year

ANNISTON HB-40 DEPARTMENT

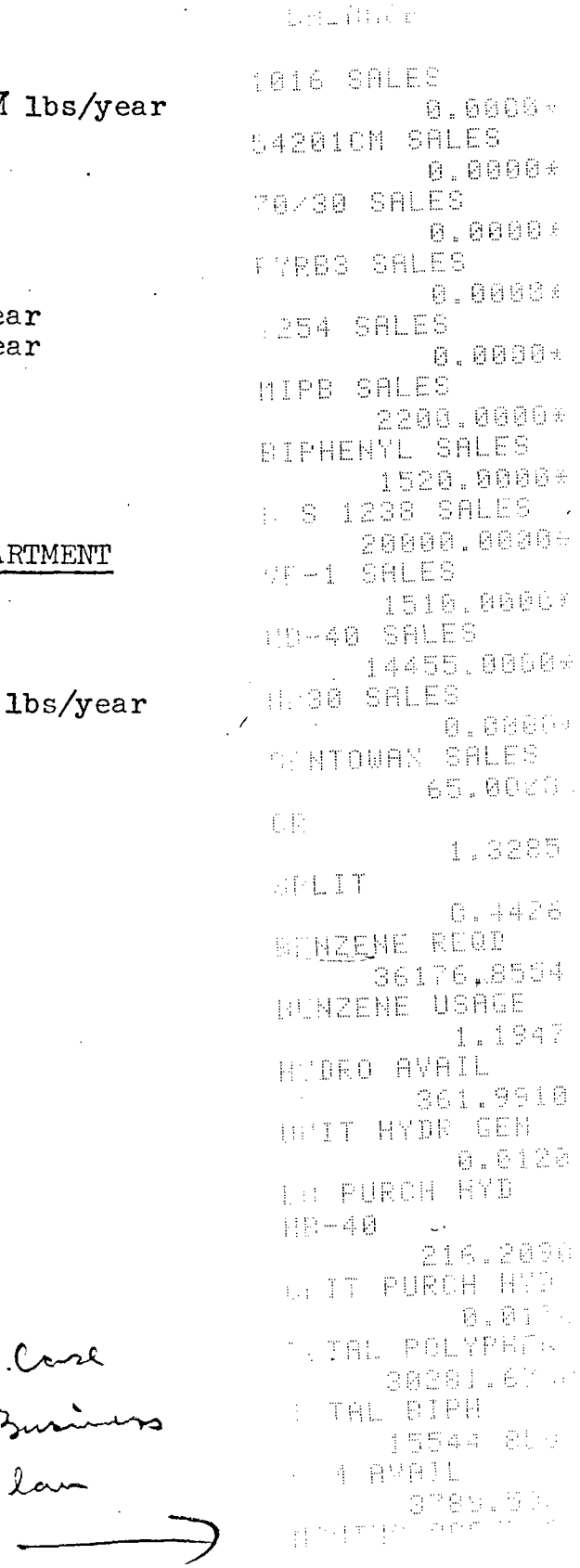
Capacity 27M lbs/year

Current Requirements ca. 14M lbs/year

Capital (M&E): Gross $ 713M
Net $ 222M

Total Mfg. Budget $ 3M/year

Final Case
for Business
Plan



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STLCOPCB4051581

	10/31 Prod. Plan	No Aroclor 8M lb. 1238	No Dielectric
	POLYPHENYL MATL BALANCE	POLYPHENYL MATL BALANCE	POLYPHENYL MATL BALANCE
	1016 SALES 18800.00*	1016 SALES 0.00*	1016 SALES 0.00*
	54201CM SALES 5233.00*	54201CM SALES 0.00*	54201CM SALES 0.00*
	70/30 SALES 5918.00*	70/30 SALES 0.00*	70/30 SALES 0.00*
	PYRB3 SALES 1645.00*	PYRB3 SALES 0.00*	PYRB3 SALES 0.00*
	1254 SALES 2200.00*	1254 SALES 0.00*	1254 SALES 0.00*
	MIPB SALES 2200.00*	MIPB SALES 2200.00*	MIPB SALES 2200.00*
	BIPHENYL SALES 1520.00*	BIPHENYL SALES 1520.00*	BIPHENYL SALES 1520.00*
	MCS 1238 SALES 200.00*	MCS 1238 SALES 8000.00*	MCS 1238 SALES 200.00*
	VP-1 SALES 1510.00*	VP-1 SALES 1510.00*	VP-1 SALES 1510.00*
	HB-40 SALES 14455.00*	HB-40 SALES 14455.00*	HB-40 SALES 14455.00*
Input ↑	HB30 SALES 0.00*	HB30 SALES 0.00*	HB30 SALES 0.00*
	SANTOWAX SALES 65.00*	SANTOWAX SALES 65.00*	SANTOWAX SALES 65.00*
↓ Output	CR 1.29	CR 1.38	CR 1.41
	SPLIT 0.54	SPLIT 0.29	SPLIT 0.16
	BENZENE REQD 42742.48	BENZENE REQD 29605.12	BENZENE REQD 25456.77
→	BENZENE USAGE 1.15	BENZENE USAGE 1.28	BENZENE USAGE 1.37
	HYDRO AVAIL 413.99	HYDRO AVAIL 310.66	HYDRO AVAIL 278.83
	UNIT HYDR GEN 0.01	UNIT HYDR GEN 0.01	UNIT HYDR GEN 0.01
→	LB PURCH HYD HB-40 164.21	LB PURCH HYD HB-40 267.54	LB PURCH HYD HB-40 299.37
	UNIT PURCH HYD 0.01	UNIT PURCH HYD 0.02	UNIT PURCH HYD 0.02
→	TOTAL POLYPHENYL 37186.92	TOTAL POLYPHENYL 23201.68	TOTAL POLYPHENYL 18599.68
	TOTAL BIPH 22450.10	TOTAL BIPH 8464.85	TOTAL BIPH 3862.85
	WCM AVAIL 3379.23	WCM AVAIL 4330.32	WCM AVAIL 4776.55
	MONTHS OCCUPIED 5.98	MONTHS OCCUPIED 4.71	MONTHS OCCUPIED 4.43
Biphenyl Unit Cost	19.20	24.04	27.27
HB-40 Unit Cost	23.64	29.50	33.07

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