SFUND RECORDS CTR
2059775

12/29/45 Corrected valuation entered on spreadsheet

Valuations of L.A. GR-S + Buta. Plants. 11/16/54

Mr. Holland

GH

A very regrettable error was made in my calculation of the valuation of the Los Angeles GR-S plant. The plant was undervalued by about $3,500,000

Valuations of the GR-S and Butadiene plants were made on the assumptions of GR-S plant operating at 60% and 80% of capacity.

You asked me to calculate values also on the basis of GR-S operating at 70% and it was in connection with this calculation that the error was found

Instead of calculating at 70% I have figured a value for GR-S plant operating at 67.4% which is the maximum capacity for which butadiene can be supplied without enlarging the steam and feed preparation units of the butadiene plant.

With GR-S operating at 80% I have included additional capital expenditures of $3,480,000, as estimated by Shell. This increases the capacity of the plant from 48,000 to 63,000 short tons

The valuations are shown on the attached sheet. The old incorrect valuations are shown in black and the correct valuations in red.

C.G.H

800293

L.A. - GR-S + Buta Plants

I Eco Enlargement of Butadiene Plant

		GR-S		Buta	Total
(1)	Capacity per yr	89,000		48,000	
	Rate of Production	60 %		89.5 %	
	Production	53,400		42,900	
	Value as is	$1,600	5185	$3,550	$13,735 / 10,150
	add'l Capital expen	0		0	
	Total Fixed	1600	5185	3550	13,735 / 10,150
2	Capacity	89,000		48,000	
	Rate	67.4 %		100.4	
	Production	60,000		48,193	
	Value as is	2875	6470	10,850	17,320 / 13,725
	Add'l cap'l expend.	0	0	0	
	Total Fixed	2875	6470	10,850	17,320 / 13,725

II Enlarging Steam + Feed prep. Facilities of Buta. Plant

	GR-S		Buta	Total
Capacity	89,000		63,000	
Rate	80 %		90.8	
Production	71,200		57,189	
Value as is	5,350	8,855	11,250	20,105 / 16,600
add'l Cap'l Expend	0	0	3,480	3,480
Total Fixed	5,350	8,855	14,730	20,080 / 23,580

800294

89 000	30	71,200	5.03	.34	4.69
89 000	60	53,400	5.44	.41	5.03
89 000	67.4	80,000	5.24	.39	4.85

Midland - Conversion based on recent curve

800295

Los Angeles GR-5 80%

Capacity 89,000 at 80% - 71,200 lbs or 159,488,000 lbs

Sales	$ 36,682	23.00
Costs		
Beta. $\frac{71200}{1.245}$ = 57,189 x 2000 x 15	17161	
Sty $\frac{71200}{4.08}$ = 17,451 x 2000 x 17	5933	
	23094	14.48
Conversion		
Excl. of Deprec + Fee	7815	4.90
Additional Local Taxes	80	0.05
Depreciation	664	42
Total Conversion	8559	5.37
Other expenses. Adv, Selling + Research 4½	1650	1485
Inc =	66	
Int.	177	
Total	1893	1.19
Total Costs.	33546	21.03
Net income before	3136	1.97
Inc Tax	1474	
Net profit	1662	1.04
Fixed	8855	
W.C.	4400	
	13255	
Return	12.50%	
Payout	3.8	
Return on Cash	25.12	

100 80 75
4.5 4.95 5.0

1662
1664
2326

4 | 8855
2214
4400
6614

800408

L.A. - GR-S 60.%

Capacity 89000 at 60% = 53,400 = 119,616,000 #

Sales	27 512	23.00
Costs		
Raw	17 320	14.48
Conversion		
Total Fac. & Defense	6 340	5.30
Add'l local Taxes	80	0.07
Depreciation	389	0.32
Total Conv.	6 809	5.69
Admin Expenses		
Admin., Selling & Research 4%	1 238	
Insur	39	
Int.	104	
Total Admin	1 381	1.15
Total Costs	25 510	21.32
Net income before Fed Inc Tax	2 002	1.67
Fed. Inc Tax at 47%	941	
Net Profit.	1 061	0.89
Fixed Assets	5 185	
W.C.	3 300	
	8 485	
Return	12.5%	
Payout	3.6 Yrs	
Return on Cash	23.1%	

17317

100 75 60
4.5 5.00 5.13

1061
389
1450

4|5185
1296
3300
4596

800410

Valuations

Los Angeles - Butadiene & GR-S Plants

The capacity of the GR-S Plant is 89,000 lbs per year. To supply butadiene for this rate of production requires (1) Operation of El Segundo using butane as raw material. or (2) operating without El Segundo using butylenes as raw material and enlarging steam and feed prep facilities, which Shell estimates will cost $3,480,000; without this capital expenditure the capacity of the butadiene plant is limited to 48,000 S.T.S which is sufficient to operate the GR-S plant at rate of 67.4% of capacity or 60,000 lbs per year.

We have calculated the value of both plants on 3 bases, all without El Segundo

(1) GR-S plant operating at 60% capacity or 53,400 lbs requiring 42,900 S.Ts of butadiene and no capital expenditures on the butadiene plant

(2) GR-S plant operating at 67.4% capacity or 60,000 lbs requiring 48 000 STs of butadiene, the maximum which can be produced without capital expenditures

(3) GR-S plant operating at 80% capacity or 71,200 lbs requiring 57189 STs of butadiene and enlargement of feed prep and steam facilities estimated to cost $3,480,000

Price Assumptions

Butadiene Plants - Butylenes at 14½¢ compared to 13¢ at Gulf plants - Increased because 115/145 Cargo on Pacific Coast sells at a premium of 1¢ over Gulf price. Because of increase in butylene cost, butadiene has been priced at 15¢ instead of 14½¢ at Gulf. GR-S has been priced at 23¢, the same as Gulf plants, on theory that premium for Coast markets will offset penalty in other markets

11/15/54

(2)

Valuation Los Angeles Butadiene & GR-S Plant

Summary of Valuations

		GR-S	Butadiene
1	Capacity	89000 lbs	48,000 sts
	Rate of operation	60 %	89.4 %
	Production	53,400	42,900
	Fixed Asset Value	$1,600,000	$8,550,000
	Additional Capital expenditures	-0-	-0-
	Total	1,600,000	8,550,000
	Working Capital	3,300,000	1,550,000
		4,900,000	10,100,000
	Net Profit	$614,000	1,265,000
	Return on Total Invest't, cash equity, and pay out	12½%, 16.6% & 2.2 yrs	12½; 34.3% 4.4 yrs
2	Rate of operation		

800384

Valuation

LAGR-S - at 67.4% of Capacity or maximum for which butadiene plant can supply with El Segundo or without enlargement of feed prep + Steam Facs

Capacity - 89,000 lbs ; Rate 67.4% ; Production 60,000 or 134,400,000 lbs

	Thousand	per lb. GR-S
Sales 134,400,000 at 23¢	30912	23.00
Cost.		
Raw	19461	14.48
Conversion		
Excl. Dep., maintenance + local taxes (Crookrite	6922	515
Maintenance + Repairs (Fiscal 1953)	1054	78
Local taxes 150	239	18
Deprec.	216	16
Total Conver.	8431	627
Other Expenses		
Admin. & Selling at 2%	618	
Research + Develop. at 2½%	773	
Insurance	22	
Interest	57	
Total Other	1470	109
Total Costs	29362	21.85
Net income before Fed Taxes	1550	115
Fed. inc Taxes at 47	728	
Net Profit	822	0.61
Return	12½	
Payout	2.8 yrs	
Return on Cash.	18.6%	
Fixed	2875	
Working Capital	3700	
Total investment	6575	

159
79
238

30912
2
61824

1391

5350
1600
3750

822
216
1038

4|2875
71875
3700
441875

800385

11/12/52

L.G. GR.S - operating at 67.4% or 89,000 (capacity) or 60,000 lt annual Rate an amount which can be produced from 48,000 St butadiene, the maximum capacity without Eq Segundo

Capacity - 89,000 lt - Rate 67.4% or 60,000 lt or 134,400,000#

	Thousand Dollars	¢/lb GRS
Sales - 134,400,000# at 23¢ (Premium of Pac Coast market off sett by dist. on other market)	30 912	23 00
Costs.		
Raw - Buta. $\frac{60000}{1.245}$ = 48,193 St × 2000 = 96,386,— × 15¢	14 458	10 76
Stg. $\frac{60000}{4.08}$ = 14706 St or 29,412,— × 17¢	5 000	3 72
	19 458	14 48
Conversion		
Exclusive of Deprec., + Fee	6 922	5 15
Additional local taxes (50% of fly 1953)	80	0.06
Depreciation	485	036
Total Conversion	7 487	5 57
Other Expenses		
Admin & Selling (2%) Research (2½%) = 4½% Sales	1 390	
Insurance (75¢/100)	49	
Interest 2% of purchase Price	129	
Total other Expenses	1 568	1 17
Total Costs	28 513	21 22
Net Income before Fed Inc. Taxes	2 399	1 78
Fed. Inc Taxes at 47%	1 128	
Net Profit	1 271	0 95
Fixed Assets	6 470	
Add'l. Cap Expenditure	-0-	
Total Fixed	6 470	
Working Capital 12%	3 700	
Total invested Capital	10 170	
Return on Total investment	12½%	
Payout	3.7 Yrs	
Return on Cost Equity	23.9%	

Contents's Data

100%	75%	67.4%
4.5	5.0	5.15

800409

Torrance - Butadiene Plant

GR-S Plant operating at ~~70~~ 67.4% Capacity or ~~[illegible]~~ 60,000 #s

Capacity - excl. of El Segundo and no enlargement to feed prep & steam = 48,000 S.T.S Butadiene (Groulouts 5/28 Tab (6))

Requirements - $\frac{60,000}{1.245}$ = ~~50,040~~ 48,200 or 100.4% of rated Capacity

yield 72.5% (Vaglica 11/12)

	Thousand $ / lb Dollars	Butadiene
3078# Sales - 96,400,000# at 15¢	14 460	15 00
Costs		
Raw. $\frac{14.5 + .7}{.725 \times 5.1}$ (15.2)	3 962	4 11
Conversion - Ex. Deprec. & Fee + Royalty	5 597	5 80
Royalties ¼¢	241	0.25
Add'l local taxes (50% of 1953)	89	0 09
Depreciation 7½% Purchase price	814	0 84
Total Conversion	6735	6 98
Other Expenses		
Admin. + Selling 1½% Sales	217	
Research + Devel. 2% "	289	
Insurance - 75¢/100 Value	81	
Interest - 2% purchase price	217	
Total Other Expenses	804	.83
Total Cost	11 501	11 92
Net Income before Fed. Inc. Tax	2 959	3 07
Fed. Inc Tax at 47%	1 391	[illegible]
Net Profit	1 568	1 63
Fixed Assets	10 850	
Working Capital - 12% of Sales	1 700	
Total Invested Capital	12 550	
Return on " " "	12½	%
Payout	4.55	Yrs
Return on Cost equity	35.5	%

800381

11/12/54

L.A. - GR-S - at 70% Capacity

Capacity 89,000 at 70% = 62,300 Lts = 139,552,000 #

	Thousands Dollars	Per lb GR-S ¢
Sales - 139,552,— at 23.0¢	32 097	23.00
Costs - Buta - $\frac{62,300}{1.245} \times 2000 \times 15¢$	15 012	10.76
Styrene - $\frac{62,300}{4.08} \times 2000 \times 17$	5 192	3.72
Raw Materials	20 204	14.48
Conversion		
Exclusive of Deprec., Maintenance + local taxes	7 117	5.10
Maintenance & Repairs (Same as Fy. 1953)	1 054	.76
Local taxes - 150% of 1953 159/80	239	.17
Depreciation	251	
Total Conversion	8 661	
Other Expenses		
Admin. & Selling (2%), Research 3½%	1 444	1.03
Insurance	25	
Interest	67	
Total Other Expense	1 536	
Total Costs	30 401	
Net Income before Fed Inc. Tax	1 696	
Fed income tax 47%	797	
Net Profit	899	
Fixed assets	3 340	
Working Capital 12% Sales	3 850	
Total invested capital	7 190	
Return - on Total invested capital	12½%	
Payout	2.9 Yrs	
on cash equity	19.2	

800382

L.G. GRS & Bula Plants 10/29/54

Mr Holland would like to know what assumptions are necessary to arrive at following values for

GRS - $3,500,000
Bula 7,000,000

	80%	60%
GRS	5,350	1,600
Bula	11,730	8550

800416

From Hadlock Form #105

	#	Unit	Amount
[illegible]	539,—	.03728	20,087
[illegible] (To-ESTEN CHEM)	10,524	.20	2,105
[illegible]	~~300~~ 300,—	.01912	5,736
[illegible] (35-40%)	249,035	.01905	4,745
[illegible]	~~55,230~~	.005	
[illegible]	55,230	.00524	289.

800368

87,500,000 #

.125

exclusive

3.6

800369

Dow – Styrene

10/26/54

Farrar reviewed Conversion costs exclusive of Fee + Royalty and gave following.

at Production of 87,500,000

" " of 80,000,000

Total Cost

8.6

8.4

8.25

8.15

Costs from Farrar's curves giving effect to most recent raw material cost / lb raw

Styrene = 1 lb Benzene

Benzene Required = 60,983,000#

from Crude 45,374,—

Total Benzene = 106,357,—#

Production of Styrene $\frac{116,886,—}{106,357,—}$ = 1.10# Sty per

Propane

Total lb Sty = 1 lb Propane

Propane = 166,193,—#

$\frac{116,886}{166,193}$ = .70

48
8
384

110.06
1.50
8.5

150

800370

[illegible] 4/30/53 (Brochure)

[illegible] additions less deductions

[illegible] " "

[illegible] Budget - Uncommitted Authorizations 8/31/54

[illegible] Unexpended Commitments 8/31/54

[illegible] Budget - Uncommitted Authorizations 8/31/54

[illegible] Unexpended Commitments "

[illegible] Deductions

[illegible] Estimated Gross Investment 16[illegible]

15[illegible]

Difference + [illegible]

[illegible] Budget - Portion as yet unauthorized $283,000

[illegible] 12/30/54

[illegible] additions 8/31/54 - 4/30/55 286,916

Work in Progress " 71,844

Total Paid + 358,760

800588

[illegible]

[illegible] Stipulation

[illegible] Gross Investment (Brochure [illegible]

[illegible] Additions less Deductions [illegible]

[illegible] " [illegible]

FY [illegible] Budget Uncommitted Authorization 8/31/54 [illegible]

" Unexpended Commitments " [illegible]

FY [illegible] Uncommitted Authorization " [illegible]

" Unexpended Commitments " [illegible]

[illegible] Deductions [illegible]

[illegible] Extended Gross Investment [illegible]

[illegible]

Difference [illegible]

FY [illegible] Budget Portion as yet unauthorized $126,000 ✓

[illegible] used brochure figures 4/30/53 ✓

[illegible] used May 27, 1954 plus authorizations as of that date

[illegible] used brochure figures

[illegible] 12/29/54

[illegible] 8/31/54 - 4/30/55 [illegible]

[illegible]

[illegible]

800589

Shell Chemical. SR-510

Torrance - Butadiene

Gross investment 6/30/53 (Brochure)	$	20 426
FY 1954 - Additions less deductions		253
6/30/54 - 8/31/54 " "		
FY 1955 Budget - Uncommitted Authorization 8/31/54		
" " Unexpended Commitments "		
FY 1954 " Uncommitted Authorization 8/31/54		
" " Unexpended Commitments "		
8/31/54 - 4/1/55 Deductions		?
4/1/55 Estimated gross investment		20 682
		20 426
Difference	+	256
Unauthorized portion 1955 Budget $ 248,—		

Shell used brochure figures

Telegram 12/29/54

Net addition 8/31/54 thru 4/30/55	-10000
Work in Progress 4/30/55	1000
Net Payment	-9000

800590

Oct. 20, 1954

Shell - L.A. Butcherine

Mr. Al Davis phoned that Shell had phoned to say that

Plant, as is, can make 46,000 Shl T
and
that to increase to 63,000 Tons would require the expenditure of $3,480,000

(held by Mr. H.)

I believe my summary sheet on all plants allowed $3,000,000 but this should be checked

C C H

800417

DISPOSAL PROGRAM 7/21/54

(1)

Dow - L.A. Styrene

The important difference between the Dow + S+P valuation are as follows:

	Bidder	S+P
Capacity -	87000 (Brochure)	62500 (Latest R.F.C.)

The S+P capacity is justified by actual production in 7 months, March through Sept 1953.

	Bidder	S+P.
Rate of Production	36000 (63%)	43,750 (70%)
Raw Materials		
Benzene	45¢/gal	43¢
Propane	5.7¢	4.3¢
Per lb of Styrene	5.16¢	4.8¢
Current costs justify S+P figure		
Conversion Costs	4.34¢	3.82¢
Depreciation	7½%	10%
Other Expenses	$1,173,000	$1,141,000
Total Costs	12.80¢/lb	10.96¢/lb
Selling Price	17.3¢	16.2¢

800572

9/21/54

(2)

Dow - L A Styrene

Valuations	Bidder	S & P
Fed Inc. Tax 52%	$12,000,000	$13,600,000
" " " 47%	13,100,000	14,800,000
Return of Total Inv. Cap.	9.85%	12.5%
Working Cap'l Cal	$3,050,000	$4,000,000
Additional Cap'l Expend	736,000*	-0-

*Dow includes allowance of about $400,000 for 3½% tax on sale of property. If such tax is found unnecessary, bid would be increased by this amount.

Fixed Asset Values.

RFC.	Gross book to 4/30/54	$15,000,000
	Depreciation " "	11,500,000
	Net Book " "	3,500,000
Parsons.	Reproduction 4/30/54	$26,000,000
	Depreciation & Obsol "	12,000,000
		14,000,000

800573

9/21/54.

(3)

Dow - L.A. Styrene

Miscel. Notes

Prices of Styrene

Present posted price		21 Cents
Private producer's price to Gov.		18 "
Past Prices	1947	14 "
	1948-49	15 "
	1950	15-18 "
	1951	18-21 "

U.S. Productive Capacity

Confidential Dept of Commerce

	Short Tons.	%
Dow (Michigan + Velasco Texas)	210,000	36.7
Monsanto (Texas City)	150,000	26.2
Koppers (Kobuta Pa)	74,700	13.1
Carbide (Institute, West Va)	48,000	8.1
Foster-Grant (Baton Rouge La)	12,000	2.1
Penn Ind. Chem., (Clairton Pa)	15,000	2.6
U.S. Government (L.A.)	62,500	10.9
	572,200	100.0

Market

If all GR-S Plants except Institute operate at 80% capacity the Styrene requirements would be about 590,000 ÷ 4.08 = 145,000 tons or 25% of total productive capacity.

Hercules estimates Pacific Coast market in 1955 at 35,000 tons, in 1958 - 50,000 tons + soon thereafter at 60,000 tons.

800574

Notes + Assumptions:

Sales Distribution - Zone VI

Total programe - Avg monthly sales of 9 R-S Dry Jan - June 1953 - 11 870.000 lb.

Torrance Calif - - - - - - 10.457.000 -

Percent sold by Torrance in Zone VI - 88.1%

Under private ownership:

At 100% Capacity assume 80% of Sales would be in Zone VI

At 75% " " 100% " - - - -

Freight Borger, Texas (Nearest LA Area plant) to L.A. $34.04/T (1.70¢/lb)

At 100% Capacity on 80% sales add 1.70¢/lb

At 75% - - 100% - - 1.70¢/lb.

Freight Torrance, Calif to Akron, Ohio $42.32/T (2.11¢/lb)

Freight Baton Rouge La. - - - $26.91/T (1.35¢/lb)

At 100% Capacity on 20% Sales deduct $15.41/T (0.77¢/lb)

At 75% Capacity no deduction

Superseded 9/1/54

Torrance GR-S

See Butadiene Torrance 9/1

800404

5/3/54
(2)

L.A. Styrene Plant (...)
Comparison S+P and Dow's Valuations

its allowances for Administration, Selling + Research is high

Interest - S+P - 2% of fixed assets as average interest on declining principal - Dow - not mentioned - apparently plans to pay all cash.

10.4

Additional Capital Expenditures

Dow allows $364,000 as additional capital to pay California + L.A. Sales Taxes. In addition $212,000 is allowed for air pollution, sprinkler + rewiring and $160,000 for contingencies

Working Capital S+P $4,000,000 ; Dow $3050,000

Return of Total Investment

S+P. 12½ %; Dow - not specified - Based on percentage + unit cost specified a bid of $12,000,000 is indicated and at this value the return on Total investment is 9.85%

Valuations	S+P.	Dow.
Styrene selling price 16.2d -	$13,600,000	
At Dow's price 17.3d -	16,200,000	
Dow's prices + costs		$12,000,000
Dow's adjusted - Using Dow's production rate + benzene + propane cost but, using our calculated raw material cost per lb. of Styrene + our conversion cost; also correcting sales expense		$13,700,000

800872

8/3/54
(3)

Dow - L.G Styrene Plan

Summary -

Dow lowered the price of Styrene from present nominal market of 18¢ to 17.3¢ and increased raw material and conversion costs. thus enabling it to use a moderate rate of return on a low bid price.

This plant should have a greater value to Dow, somewhat less to Monsanto than to any other bidder. With its dominant position and its polystyrene plant on the Coast, it can continue the exchange arrangement and its cost for selling and research will be less than that of a new factor in the market. Furthermore if this plant is bought by an independent the price of styrene might go substantially lower and affect the earnings of Dow's other plants

800863

DISPOSAL PROGRAM Aug 2, 1954

(1)

L. A. Styrene Plant

Comparison S&P and Dow's Valuations

Capacity - S&P - 62500 Sh't Tons Bidder - 57000 (Bech

	S&P	Dow
Rate of Production Percent	70 %	63 %
Sh't Tons	43,750	36000

Sales Price per lb, fob 16.2 ¢ (Average) 17.3 ¢

S&P assumes 17¢ for Pacific market and 15¾ + 15¢ for sales at Borger and other parts of U.S.

Costs. Raw Mat'ls

Benzene ¢/gal	43¢	vs	US ¢
Propane " "	4.3¢	"	5.7¢
Net per lb. Styrene	4.8¢	vs	5.16¢
Conversion (ex. deprec)	3.7¢	vs	4.34

For the above costs S&P used record of recent months. Benzene 40¢ Northeast ports plus ocean freight; crude benzene at competitive price. We calculate that conversion costs at production rate of 36000 tons should be 4.1¢ instead of 4.34¢.

Royalty S&P None Dow - None

Depreciation S&P 7½ % Dow 10 %

Gross book value of fixed assets as of 6/30/53 was $15,107,000 and new additions in fiscal years 1950 through 1953 - $2,750,000.

Dow's stated allowance 5% but in unit costs used $\frac{9L}{173}$ = 5.55 %

Other Expenses.

	S&P	Dow
Administration + Selling	$527,000	600,000
Research + Development	200,000	482,000

In view of Dow's proportion of total styrene production

800871

L A Styrene 7/30/

Farrar

				49.64 from C
Many	Refined Benzene	6.01 × 7.2		43.29/Gal.
	Propane			4.3d/Gal
April	Crude Benzene	2 found cost		41.1
	Benzene			44.01d
	Propane			4.31d
Mar.	Crude Benzene	Cost of refined		43.49
	Benzene			43.75
	Propane	4.3	41.10	4.31
Feb. April	Crude	4.3	44.01	41.49
	Benzene		43.49	44.01
	Propane		43.75	4.31
			41.49	
			44.01	
			41.60	
			43.77	
			2.33	
			8 343.22	
			43.0	
June	Crude			41.60
	Benzene			43.77
	Propane			4.31

Average Benzene price for month of June, April, Mar. + Feb. 43.0d/gal

Information to come

Conversion Cost ex Mgt fee + Royalties

Net raw material cost with Benzene at 45d + Propane 57d

Whether above propane cost is after crediting propane received in propylene exchange + arrangement?

Net. Raw 5.00 net cost of raw benzene 45
Conv. Net. 4.80 ex. 8 Propane 3.7
Roy .125
Mgt. .675

By products
15

800366

80
125

DISPOSAL PROGRAM 7/8/54.

Valuation L.A. Stylrene

Summary

Capacity	Production		Selling Price f.o.b. plant		Calculated value fixed assets at 12½% return	Return on Cash required	Payout on Fixed Assets	
	% of Capacity	Tons per year	Lowered	Weighted Aver.			+ Deprec.	After all Charges
62,500	70%	43,600	17	16.2	$13,000,000	28.6	4.15	6.0
"	80%	50,000	17	16.1	15,000,000	29.8	4.26	6.25
"	80%	50,000	16	15.1	12,750,000	28.4	4.14	6.0

Use 13,000,000

800876

-17/54

(1)

Mr. Mr. - + Pauley - L.A. CR-S Plant

Cut-off date for fixed assets was 5/27/54

Rate of Production: [illegible]

15000 LT/yr - includes no sales to large tire [illegible]

Cost of Raw Materials — Cost of Finished Product

Styrene 18¢

13-18¢ Butadiene — Rubber 24¢ to 28¢

Break-even on 13 with 24 & 18

Yield Experience

Conversion Cost

Taxes $242,500 Same

Insurance $55,000

Maintenance - Well maintained and used

Current rate

Research 200,000 ±

Administration

Selling

900,000 to 1,000,000

Depreciation 180,000

Capital Expenditure - None.

Working Capital $2,124,000

Replacement value - Did not figure

Cost 500,000 to put in standby

[illegible]

Bay is fifth on W. coast [illegible] after Goodrich

73% of present production is going to big 4

always over 70%

800934

[redacted] 1-3 7/6/54.

(1)

16¢ rate 80%	17¢ Rate 80%	Valuation of Los Angeles Styrene Plant
		Assumptions
	Alt 1	Capacity 62,500 Sh. Tons/yr (Brochure 57,000)
		Rate of Operation - Sh Tons
do	80%	Cajacent GR-S plant operating at 65% of Capacity
do	15,500	would require at yield of 4.10 - Sold at 17¢ 12,600
do	6,500	Sold for other uses on Pacific coast at 17¢ 8,000
		Borger GR-S plant operating at 80% of capacity sold
		at 17¢ less difference in freight to Borger from
do	13,000	Velasco and from L.A of 1½¢ - fob price 15¾¢ 13,000
		Sold in other parts of U.S. at freight penalty
do	15,000	of 2¢ - fob plant = 15¢ 10,000
50,000	50,000	Average annual sales over next 8 yrs 43,600
80%	80%	or about 70% of Capacity (Actual for 11 mos. to 5/31/54 - 84%)
		Sale price fob Gulf plants 17¢
15.10	16.10	Average sale price fob L.A. plant 16.20¢
		Cost of Production before depreciation, royalty and
		management fee, based on (1) net cost of raw
		materials for 11 mos. ended 5/31/54, (2) Conversion
		cost for same period adjusted for lower operating rate
8.25	8.25	and for 50% increase in property taxes = 8.28¢
6.85	7.85	Oper. profit/lb before deprec. & royalty = 7.92

800877

Dow Chemical

Valuation of L.G. Styrene Plant (Cont)

50,000 Tons at 80% 17¢/lb.	50,000 80% 16¢	Pro-forma P+L.		Product 13,600 70% of Ca
16,100	15,100	Sales 87,200,000# at 16.2¢ (70% of capac.)		14100 0
8,250	8250	Cost of sales, excl. deprec. + Roy. at 828¢		7220 0
7,850	6,850			6880 0
1,125	956	Depreciation at 7½% of fixed asset bal.	975 000	
		Selling, administration + research at		
644	604	4% of sales	564000	
402	377	Royalty at 2½% of sales	353000	
113	96	Insurance at .75/100	98000	
2,384	2,033		1,990,000	1990 0
5,466	4817	Net before interest + inc. tax		4 890 00
450	382	Interest at 4% on 75% plant value		390 00
5,016	4435			4500 00
2,618	2,306	Income taxes at 52%		2340 00
2,398	2,129	Net income after all charges		2160 00
		Investment		
15,000	12,780	Fixed Assets		13000 00
4,300	4,300	Working capital (95 of 5/31/54 - 3,000,000)		4300 00
19,300	17,050	Total invested capital		17300 00
12.42%	12.48%	Return on " " "		12.5 %
8,050	7,488	Cash Investment (25% of fixed asset plus WC)		7550 00
29.8%	28.4%	Return on cash investment		28.6 %
		Payout - that is number of years required to return cost of fixed assets from		
4.26	4.14	(a) Earnings after taxes but before deprec.		4.15 y
6.25	6.00	(b) " " " and depreciation		6 years

800879

*at 100% capacity and 17¢ price, return on total invested capital is 15%
and payout 3.96 and 3.5 years

752
FB 99 330
L.A. to Borger 2231 cw
Velasco 955 ft
27

July 2, 1950
I

L.A. Styrene Plant

DISPOSAL PROGRAM

Demand for Styrene Pacific Coast

GR-S L.A at 65% Capac 82,000 lt. = 53,000 LT.

Yield = $\frac{\text{GR-S LT.}}{\text{ST Styrene}}$ = 4.10

Short Tons Styrene = $\frac{53000}{4.10}$ = 12,600 ST

Remainder of Pacific Coast Area 8,000

GR-S at Borger 66,000 LT @ 80% = 53,000

$\frac{53000}{4.05}$ R.R. (@ frt penalty of 14d) 13,000

33,600

Gulf plants by water Frt. 22 to 23/ST = 11d

Remainder of U.S. at frt penalty of 2d 10,000

87,200,000 43,600 ST.

43600 Tons = 70% of rated capacity of 62,500 as recently given by Production department and 76½% of 57,000 short tons given in brochure which most bidders assumed

Cost.

Total Cost. ~~Conversion~~ at 4 ~~[illegible]~~ 8¾d 8.75

Fee + Royalty .61

8.14 Say 8.20

Production 11 Mos. = 48,000 Tons Prop. tax.

12 Mos 52,400 " = 84% of 62,500 Capac

Total cost excl. Deprec, Fee, + Royalty 8.20d

To Increase property tax by 50% add $\frac{[illegible]}{87,200,000}$ .08

8.28 Say 8¼d

$69,000

800943

Dow Chemical

7/21/50
(2)

L.C. Stymme

Sales Price =	20,600 at 17d		=	350000
	13,000 at 15 3/4d		=	205
	10,000 at 15d		=	150
	43,600	16.2		705,000

436 / 872	Sales 87,200,000# @ 6.2d =		$14,100,000
	Cost of Sales before Deprec., Roy., and Fee @ 8 1/2		7,400,000
			6,700,
	Depreciation at 7 1/2%	963	
	Selling Research & Admin	760	
	Royalty, 2 1/2% of Sales	350	
	Insurance	120	
		2183	2183
	Net before interest & Inc Tax		4,517
	Interest at 4%		386
			4,131
	Taxes @ 52%		2150
	Net after taxes		1,981
	Capitalized at 12 1/2%		15,850,000 Total Inv.
	Working capital		3,000,000
	Fixed assets		12,850,000
			12,850

800944

DISPOSAL PROGRAM - 6/30/54

(1)

Campbell & Gillespie

Fixed Assets - [illegible] May 27, [illegible] on that date
not to include [illegible] 5/27/54
If sales tax [illegible] can be [illegible] - [illegible] would be higher
their [illegible] + 35% to cover sales tax

Capacity -

~~Rate of Production~~ Total [illegible] Pacific [illegible] GR-S grade + 99.5
H. grade 52,000 [illegible] grade ~~[illegible] for Polyety~~
- 8,667,000 #/[illegible]

Rate of Production

6,000,000 #/mo = 3000 × 12 = 36000 Tons

Raw Materials Benzene 45¢ Propane $.657/Gal Now 3½¢

.055

779
155
220

Ben 5.4
Prop 2.0
3.9
7.40

[illegible] chemicals

Credits 1.21
29
150

779
39
7.40

740
155
185

Selling Price -

Avers. GR-S & Poly = 7.3

fiscal 53

Raw	5.55	11.84	Cons	3.82	
Depr.	1.67	7.89	Chem	37	
Res	58	3.95		3.45	
Tech.	09	37	Less Mgt'l 49	66	Dow
	7.89	4.34	Roy 12	2.84	3.95
			61		

17.3
.05
8.65

Have not included Royalty

5196
5

1280
11.84
96

17.30
12.80
4.50

Raw - 5.55¢/
Operating Labor .52
" Supl .13
Utilities 1.62
Maintenance Labor .45
Mtl 3.95 1.62 2.33 .30
Labor .05
Tax. & Ins .18
Factory Tax .70
Depreciation @10% 1.67
Research & Expen. .58
Tech Service 15% of Research .09

Sales on 5% Selling Price 11.84
Total .96
12.80

800452

6/30/54

(2)

[illegible] - L.A. [illegible]

Profit before Taxes. 3,200,000

Dont need any [illegible] 1958

2,200,000 to [illegible]

1,800,000 Pol. [illegible]

3,000,000 For other purposes.

Capital Expenditure

Inventory	2,350,000	3,050,00
Other	700,000	3,—,—
3% Cal. Solution	312,000	L.A. ½%,
	52,000	
Reduction Air Pollution	62,000	
Sprinkler	100,000	
Elec. Rewiring	50,000	
Contingency	160,000	
	3,774,—	
	3,050 — Working Capital	
	724 Capital Expenditure	
	364	
	360	

.035 12,000,000 / 420

312 / 52 / 364

372, — / 364 / 736

312 / 52 / 364

10,400

Regarding Royalty

Mr. Campbell states that the maximum rate of 5% is considered reasonable by Mr. Campbell. Has not been passed on by the board.

Assets

Fixed 12,000,000

Profit before 3,200,000

[illegible] 40% 535,000

800453

6/30/54
(3)

Hon - L.A. Styrene

Profit before taxes 6,000,000 x 12 x 4.50¢ = 3,

Nelson index

Asset 3/15/44 12,179,— x 206 = 25,100,—
Addition 4,600,000 x 1.27 = 6,670,—
31,770,—
20 year life. - 12160 19,100 —
5% deprec., consider 7% 12,670,—
Did not calculate obsolescence

This plant is not a multiple use plant
make Styrene and other products

Alcohol ethylene plant of no value
Carried on book at $580,000 - ?

New Plant of 6,000,000/per mo
9,000,000
W.C. 4 to 5,—,—
13 - 14,—,—

5,—,— $/mo to Velasco = $3,000,000
W.C. = 3,600,000

800454

Dow

L.W. Styrene

6/30/54

(4)

Package deal,

15, —, — Styr —

15, —, — GR

30, — — [illegible]

45, —, —

10% 4,500,000 offered for GR-S + Buts.

Discussion of Styrene patents at 5% of sales price — gets "know-how"

800455

Shell - 3 L.A. Plants

Bad - loose $2, —, —
Good - make 4 to 5, —, —

Return of Investment
8% on invested normal, but on a business such as L.A. would be much higher.

Insurance.

Styrene + Prop. Tax. .2¢/#

Royalty less .1¢/# Sty
Butan. 1/4¢/#

$13, —, — without Ethylene
$15, — — with Ethylene

800397

Items

West Coast - (facilities)

Shell Chemical Corp. bidder - 6/24

Did not evaluate assets or prepare pro-forma statements. Merely picked a lump figure for the whole complex.
Did not break figures down to separate plants - strictly a "package"

Consider 8% return as good - but does not apply to this plant.

Insurance - - - .2 ¢
Royalties - Styrene .1 ¢
- butadiene .25 ¢

800398

Re Shell end for West Coast Plants 6/14/54

Styrene Plant. Shells figures

Cost of Production before depreciation, royalty, insurance with Benzene at 45¢/gal + propane at 3½¢/gal based on conversion costs for 10 mos. ended April 30, 1954 8.00

Assume average annual sales 80% of capacity or 62,500 Sht Tons or 50,000

Required for GRS 14,705

Outside sales 35,295

From gulf to L.A. by sea train .92¢/lb.

From L.A. to Gulf by Tanker about .75¢ lb.

1¢/lb. appears to be more than ample

Hence with Gulf plants selling at 16¢ fob gulf plant. L.A. would sell at say 15¼ fob.

Outside sales of Styrene

35295 × 2000 × 15¼ = 10,760,000

80% Capacity	or	50,000 Tons
	C.R.S. at Cost	14705
	at 16¢	5295
	at 16 - ½ = 15½	30,000
		50,000

Cost 8.00

800367

6/14/54

(1)

Shell

CW Humphrey, VP Production + Stick VP Marketing

Estimated Boo[illegible] cost on all plants

Did not [illegible] figures

Gulf Coast plants set pattern.

Big four plants on Gulf important.

[illegible]

Could lose money first; make money later.

[illegible] package only

[illegible] says hold detail figures confidential

Benzene ✓ 45¢/Gall delv.

Propane ✓ 3½¢/Gal

Butylene ✓ 16¢/

Confidential

✓ 46000 Tons Buta. Refining stream

+ obsol.

Deprec. 8 to 10%

Reproduction on basis to build the capacity

This relation would be less value that Gulf.

Extra cost to replace now offsets the extra comes from escalation.

Unsplant now not far from Gowan. Gross Book

Have not given much consideration to basic obsolescence on product and process.

Nothing much "just around the corner"

800392

6/14/54

(2)

Shell - [illegible]

Maintenance - Depn.

Buta - Styr. well [illegible] about the same as under Gov.

Copolymer not as well maintained >

- Would have to increase over Gov.

Insurance

? Does not know ? Taken into

Royalties.

Buta - .375d less Shells participation

Styrene - maybe ¼ will check.

[illegible] Dow patent expires next

Research -

$500,000/yr.

Most on GR-S - Such things as tech. Service

Not much on Styrene - Buta.

End Product price

would follow rest of industry

1947-53

Growth part Styrene 15% [illegible] will level off to 5%

Basic ~~[illegible]~~ philosophy was discount from Gulf plants.

Capital Expenditure

Had no major capital expenditure to make 46,000 tons which is [illegible] for GR-S at full capacity.

Estimate of future demand of GR-S would not require

Capital to make B. Tyler [illegible] - not [illegible] templates

[illegible] from Shell.

Capital for Tankage in the East. few hundred thousand

How much Styrene can be made of 99½% (Poly grade)

Freedland [illegible] June 21 2 P.M. Copolymer

[illegible] Gardner 9 A.M. 23rd June

800393

6/14/64

(3)

Shell - Hen[illegible] + [illegible]

Location prevents [illegible] in excess of copoly next

Working Capital
for 3 plants $12,000,000

Administration, selling -
8% of Sales.

Insurance
part of plant expense

Research + Development
$500,000 for 3 plant.

Sales price
GR-S. 19 to 23

Styrene 14 to 18¢

Carbide now 17¢
not met by other

GR-S 57,000

6/14/54

R.F.C.

	Gross	Net
Butadiene	16,184	7,801
Styrene	15,185	3,476
Toluene Butadiene	20,600	3,400
	51,969	14,677

Parsons

Butadiene	24,300	10,500
Styrene	26,089	14,140
Butadiene	34,000	67,200
	74,389	41,840
		80%
Butadiene	10,000	12,300
Styrene	13,500	19,500 @ 18
Butadiene	10	12,500
	35,000 -	44,300

30

800395

1/11/54

L A Styrene

Percent Earnings on a new plant 62,500 ton capacity

Parsons reported new , 4/30/54 ... FC Cost (book value)

or 26 million

Assume that improvements in design, equipt

etc would allow for new plant at say 23,—,—

Their pro forma income account would be as foll

		at 50%	at 100%	
Sales		18,000	22,500	
Cost of Sales		5,060		
		9940	12430	
Depreciation 5% of 23,—		1150	1150	
		8790	11280	
Admin + Selling	200			
Royalty	450			
Insurance	173			Call Cash at 80%
Res & Dev	250			
	1073	1073	1073	
		7717	10207	7717
Interest, on 75% of fixed		690	690	
		7027	9517	
Fed Inc Tax @ 52%		3653	4950	4013
Net after all changes		3374	4567	3704
Investment				
Fixed Assets		23000		
W.C.		4000		
Total		27000	27,—	27 —
Return		12½%	16.9%	13.73%
Cash	5750			
	4000			
	9750	20.6		

800365

6/10/54
CCN.
I

Los Angeles - Styrene Plant
Fair Value Based on Taming Power
Summary

Price of Styrene		Per pound
Present posted price		21 Cents
Private producers price to Government		18 "
Past prices		
	1947	14 "
	1948 - 49	15 "
	1950	15 to 18 "
	1951	18 to 21 "

It is generally believed that the price will be substantially reduced when U.S. Government contracts with Dow, Monsanto and Koppers terminate in the latter part of 1954

U.S. Productive Capacity

Data are not published but following confidential figures on annual capacities, come from U.S. Dept. of Commerce:

	Short Tons	Per Cent
Dow - Midland (Mich.) Velasco (Texas)	210,000	36.7
Monsanto - Texas City (Texas)	150,000	26.2
Koppers - Kobuta (Pa)	74,700	13.1
Carbide - Institute (West Va)	48,000	8.4
Foster Grant - Baton Rouge (La)	12,000	2.1
Penn Ind. Chem., Clairton (Pa)	15,000	2.6
U.S. Government, L.A. (Cal)	62,500	10.9
Total	572,200	100.0

800926

Summary - Fact sheet LA Styrene Plan. (Cont.)

U.S. Consumption

Growth has been very rapid since 1943, first because of GR-S, later because of use in plastics as polystyrene.

	In Short Tons		
	GR-S	Plastics	Total
1944	170,000	5,000	175,000
1952 (Est.)	175,000	185,000	360,000
Estimated Possible			
1957	186,000	398,000	584,000

Several years ago DPA estimated at 605,000 tons in 1955. Very rapid growth in recent years of polyethylene (film and squeeze bottles) may affect demand for polystyrene in some of its applications. Production of polyethylene in 1953 80,000 tons; new production facilities by leading chemical companies are expected to result in total production capacity of 294,000 tons by 1958.

Hercules expects Pacific Coast demand for styrene will increase from 35,000 tons in 1955 to 50,000 tons in 1958 and soon thereafter to 60,000 tons.

An average annual production over the next seven years for the Los Angeles plant at 80 per cent of capacity, or 50,000 tons seems to be a reasonable assumption.

800927

[illegible]
[illegible]
(3)

Summary - Fair Value [illegible] Plant

Production Costs. Based on results of 10 month period ending 4/30/[illegible]

	Per pound Styrene
Raw Materials	
Benzene and propane	6.28 d
By-product credits principally toluene + propylene	1.54
Net raw materials	4.74
Conversion costs exclusive of royalty, management fee and depreciation	
Chemicals	.33 d
Utilities	1.32
All other	1.75
Total conversion	3.40
Inventory adjustment	(.08)
Total costs	8.06

at 100% Cap	Fair Value Based on Earning Power with production at 80% Capacity		
18 d	Assumptions - Sales price per pound	18 d	16 d
125	Production - 80% Capacity in thous. of lbs	100,000	100,000
		In thous.	of dollars
	Sales	$18,000	$16,000
	Cost of sales exclusive depreciation	8060	8060
12,430		9940	7940
	Depreciation - 5% value of fixed assets based on Int. Rev. Consultation	975	750
975			
11,455	Gross profit	8965	7190
	Administrative and selling	200	200
	Royalty - 2½ % sales price	450	400
	Rubber Reserve's contract [illegible] stipulates 5% royalty but it is rumored that Thousands + Keppers pay about 2½ %		
	Insurance at $[illegible] per $100 of valuation	146	113
	Research [illegible]	250	250

800928

6/10/54

(4)

Summary L.A. Styrene Plant (Cont.)

Fair Value based on Earning Power (Cont.)

		Styrene per lb. 18¢	16¢
	Carried forward sub-total	$ 1046	$ 963
10,409	Net income before interest & inc. tax	7919	6227
585	Interest - 4% of 75% of cost fixed assets	585	450
9,824	Net income before income tax	7334	5777
5,106	Income taxes at 52%	3814	3000
4,718	Net income after all charges	3520	2777
	Investment		
	Fixed assets	19 500	15 000
	Working capital (actual [illegible] $2,800,000)	4000	3500
23,700	Total investment	23 700	18 500
19.9	Return on total investment	14.85 %	15.0%
	Cash investment (25% fixed assets plus W.C.)	8 875	7 250
53.1	Return on cash investment	39.6%	38.3%
	Payout, i.e. the number years required to return the cost of fixed assets from		
3.42	(a) Earnings after taxes but before deprec.	4.34 yrs	4.26
4.14	(b) Earnings after taxes and depreciation	5.54 yrs	5.40

800873

Fixed Asset Values	Thous. of dollars
RFC - Gross book value as of 4/30/54	15 185
Depreciation to 4/30/54	11 709
Net book value	3 476
Parsons - Reproduction new escalated to 4/30/54	26 089
Depreciation to 4/30/54	11 877
Depreciated reproduction value	14 212
Obsolescence	72
Depreciated reproduction value less obsol	14 140

The above calculation shows that, considering 15% to be a fair return on total capital investment (fixed assets plus working capital) and assuming a sales price of 18 cents and production at 80% of capacity, then a fair valuation of the fixed assets would be $19,500,000. With a sales price of 16 cents and other assumptions the same then the fair valuation would be $15,000,000. The return on the cash equity (25% of fixed assets plus working capital) is 39.6% and 38.3%

(IP 2) Sales were at 100% of productive capacity and styrene price at 18 cents then the return on total investment, assuming 75% of fixed asset cost were borrowed at 4% would be 20% and 53% on cash equity. The "payout" on fixed asset cost of $19,500,000 by net earnings after taxes before depreciation would be 3.4 years

Sale of Government Styrene Plants in 1946-47

The table hereunder gives data on capacity, RFC book values and sales prices of the four plants sold in 1946-47. As heretofore noted the posted price of styrene was 14 cents in 1947, 15 cents in 1948-49 and beginning in June 1950 increased to 18 cents in Oct 1950 and 21 cents in Dec 1951.

800436

L.G. Styrene Plant (Cont.)

	Carbide	Monsanto	Koppers	Dow
Purchaser	Institute	Texas City	Kobuta	Velasco
Location				
Annual capacity in short tons	21,000	57,600	21,600	96,00
RFC Gross book value in thousands	$ 9,586	18,812	12,242	17,82
RFC net book value "	$ 6,036	13,019	8,678	12,23
Sales price in thousands	$ 2,502	9,550	3,263	14,51
Sales price per ton of capacity	$ 119	166	151	152

The sales prices on the L.G. plant of $19,500,000 and $15,000,000 shown heretofore are equivalent to $312 and $240 per ton of annual capacity.

Newly Constructed Plant

Parsons estimate of reproduction cost new of the present plant, as of 9/30/52 escalated to 4/30/54, is $26,000,000. To be conservative, assume that a new plant of the same capacity could be built for $23,000,000 or $368 per ton of capacity. At this cost and assuming that styrene is at 18¢ and would be produced at the same cost, then the return on the total invested capital would be 12½% at 80% capacity and 16.9% at 100% capacity. These returns compare with 14.8% and 19.9% if present plant were purchased for $19,500,000

A new plant might have slightly lower operating costs. ~~but~~ The advantages of having a plant with going production rather than one with production beginning in 18 months, are obvious

Shell Chemical Corporation

Messrs. Hum phrey + Steel (Charge of Sales)

Messrs. Holland, Heins + Holinquist

Important facts developed

1. Price set along broad lines. Did consider detail figures but adjusted final price on the theory that products from the coast GR-S + Butadiene plants because of their location are not competitive in markets of other parts of the country. This is not true of the Gulf plants and the coast plants should sell less than Gulf plants. This does not apply to styrene and they have figured on competing in other parts of the country and with this in view would establish tankage on Gulf coast and at Sewaren N.J.

2. Demand for styrene over recent years has increased about 15% annually. Shell believes the future increase will be about 5%

3. Following feed-stocks costs assumed -

Benzene 45¢/gal (To be held confidential)

Propane 3½¢/gal.

Butylene 15¢ " " (Shell oil supply about 50%)

Future demand + price of butylene would be affected by octane race in motor fuel and demand for 115/145. Not all alkylate plants have equipment to handle propylene.

800426

A. D. H

Shell - Torrance - Butadiene

Davis + Zinn advise that feed prep and dehydro units at Torrance are the same as at Cities Service - Lake Charles which has an annual capacity from new stock of 63000 ST. They state that without S.O. of Cal capacity at Torrance is about 45,000 from new stock (Crowkrite's figure is 48,000) and that the bottleneck is steam capacity. It would seem, therefore that in figuring earning power of Shell - Torrance the rated capacity should be taken at 63000 (from new stock) and then deduct the cost of a new boiler. Perhaps a cost of such a boiler can be taken from Lake Charles which installed a new boiler several years ago.

800429

6/8/52
(4)

L.A. Styrene

Fixed Asset Values

R.F.C. Gross Book as of 4/30/54	100	15,163
Depreciation to "		11,709
Net Book value		3,454
Parsons Reproduction new escalated 4/30/54		26,089
less deprec. " "		11,877
		14,212
less obsol		72
Depreciated reproduction less deprec.		14,140

125,000,000 / 1000 = 8

Projected earnings

Average annual production over the next 8 years, assumed at 80% Capacity of 125,000,000 lbs. or 100,000,000

Assumed selling price fob plant 19.00 Cents

Costs per pound of styrene

Raw materials based on actual costs for 10 mos. ended 4/30/54	6.28	
less by-product credits	1.54	
Cost of net raw materials consumed		4.74
Conversion costs		
Chemicals	.33	
Utilities	.132	
All others - exclusive of Royalty of .125	.175	
Total exclusive Roy (.125) Lic't fee (.50) + deprec		3.40
Work-in-process inventory fluctuation		(.08)
Total operating costs, excl. deprec., Roy + fee		8.06

800339

A table of these sales is shown below:

	Carbide	Monsanto	Koppers	Dow
Location	Institute	Texas City	Kobuta	Velasco
Annual capacity in Short Tons	21,000	57,600	21,600	91 000
RFC. gross book value in thousands	$ 9,586	18,812	12,242	17,828
R.F.C. net book value " "	$ 6,036	13,019	8,678	12,237
Sales price " "	$ 2,502	9,550	3,265	14,518
Sales price per ton of capacity	$ 119	166	151	152

Sale prices of $19,500,000 and $15,000,000 would be the equivalent of $312 and $240 per ton of annual capacity

800340

5/17/54

Vaughn File Shell - Butan.

Harger. Oakley

Limerick

Isobutane bought at 7¢ sold at 10¢
1/2 Purification

45% Butyl 8 to 10%

Di Isobutyl at (12 to 13¢) 15.2¢

So. Cal. Gas.
4% yield

Isobutylene 1/40 is not in balance

Butane separation not clean

Tl Segundo - 56%

1# butane to butadiene .145# Butadiene one pass
1# " to butylene .540# one pass

58% in Tandem
50% alone

10-11¢ to So. of Cal for butane.

3½ Tl Pasa
3½ fit.
7
6.8 net cost b

800400

Rated capacity 63,000
now — 28-30,000

14¢ cost @ 45% equiv 10-11 on 100%

Overall yield butyl to butan. increased from 60% 74%

Fit from Gulf on GR-S .6¢

To attain 62500 requires butyl conc.
Concentrates contain 10,000 Tons/yr.
In 1953 had conc. from Bergen
55000 Tons capac. ent butyl Concen.

S.O. of Cal say 50,000

At 95% blend purity about 9%

Au Cat cracked B.B. stream: 46,000 ST/yr.

Now bottleneck in feed prep.

Has not figured cap. cost to bring it into balance

Market project 45,000 ST

800401

Labor + Staff.

24th operations shift of 4	96
(includes foreman +	
+ Supervision	—
Total	110
Maintenance + repair	122
	232

Staff.

2.

Gallon of propylene containing 40% propa

1 Gal of propane

2 Gallons of propane for 1 Gal. of 40% Propylene

5½ million of propylene per Mo. at Max Pro

800402

W. ADAMS, JR. May 13, 1954

Irving
Adams - Ass't Plant [illegible] File Mullen

Rated Capacity -
No Eat. 85,000 7000/mo.
[illegible]
[illegible] 6500/mo.

3000 Tons Gross
Hours 1 Unit of Tow 2500/mo Net GR.S
3 Hours Cannabalized (Lower Storage used)
not operated [illegible] 1944
Current [illegible] Jan 3 Solid
+ Eatices Feb 3
Mar 5
April 2

75% to big fours 5%

100% on [illegible]
formerly some [illegible] Phila + Boston by boat.

Balance of [illegible] 1950 [illegible] 2600

Hot + cold
3 types black
No Oil extens
Non-staining

Because of diversity of products
[illegible] equipment

Peale - May 1953
June
1 Unit [illegible] only
3 1/2 hot only 1/2 Hot or cold.

Avrue - Conversion [illegible] Production problem

800303

Malton Ch/Gent Whaley Tech Supm

Sullivan Ass't Chm/Gent

Because [illegible] pt rates are less than furnished good, [illegible] would guess that Midland costs may be slightly lower than Guy plus freight.

[illegible] 626 labor

[illegible] 352

Big four except for Goodyear, are consuming less than the produce of Syn. — Goodyear consume more.

1500 — 23. — plus 1.1d Cl. 24.1 del'd price

1706 20% Lit 19 1/4 17d Lcl

1712 27.3% " 17 3/4

from Gulf here 1 3/4 d/lb

800304

800 341-346
347-349

5/7/54

(1)

Styrene - Dow L.C.
Parsons Report

Process - Ethylene

Propane to furnaces - cracked to Ethylene
Cooled and compressed then to methane tower where tops methane + hydrogen are removed for fuel gas and bottoms to ethylene tower where tops Ethylene goes to Ethyl benzene unit, bottoms to propane tower where tops ethane goes as fuel gas and bottoms to propylene tower where propylene + propane are removed overhead and pass to propane feed charge storage, bottoms to residue oil stabilizer where propane tops are removed and bottom ~~oil~~ residual oils go to storage

Benzene.

Crude charged to still - benzene + Toluene removed overhead condensed + cooled to feed tanks, bottoms go to solvent boiler storage. Benzene + Toluene to wash tanks for acid treatment; acid sludge to waste. Treated feed neutralized with hot caustic then sweetened and to benzene still, refined benzene from tops and bottoms to toluene batch stock storage which then goes to still to produce toluene - residues to fuel.

Ethyl benzene.

Al. Chl, benzene, Ethylene + HCl and polyethyl benzene recycle to reactors to form ethylbenzene which is subsequent purified

Ethyl benzene Cracking dehydrogenations produce styrene which is subsequently purified

800344

5/7/54.

(2)

Styrene - Parsons

Raw Materials from		Per Year	Ho Co
Crude Benzene (72% purity)	Port'd G.&C.Co	5,-,-	29.
" " (95% ")	Seattle Gas	1,100,000	35.
" " (95% ")	Honolulu Gas	1,100,000	34.
Benzene	Kaiser Steel	600,000	36
"	Shell Oil	Varies	46..
"	Spot RFC purchase	"	vari
Propane	Various L. A. Refn	13 to 14,-,- pounds	.0

Portland + Seattle supply may be reduced 50% in 1955 if natural gas goes into area. Kaiser source may increase. DPA has authorized plant for S.O. of Cal 13,-,- of benzene per yr. and balance from that not used by S.O. may be available; also Union Oil's plant should provide 12,000,000 gals/yr to open market

Production

48	31,700	ST/y
49	15,850	"
50	26,850	"
51	45,350	"
52	55,000	" (To limited

Future Demands

RFC. - Styrene demand for Rubber in million #/yr

1953 - 377, 1954 - 341, '55 - 351, '56 - 362, 1957 - 372

Plastics

Products which will use styrene - battery cases, refrig. int., pipe vessel lumps, wash basins

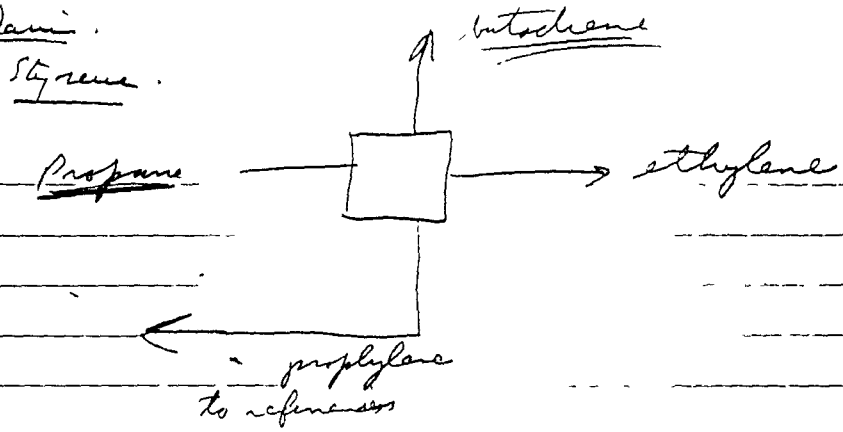
In 1951, 245,-,-# out of 356,-,-# used for molding

63,-,- Tinsel + 48,-,- for protective coatings

4/6/54.

Rami.

Styrene.



2160 Tons

211 Contracts

Rubber 4/5/54

800345

4/7/54.
(2)

Copolymers
Styrene

Capacity as of June 30, 1954

		Short Tons
Dow - Midland	Mich	24 000
Dow - Velasco	- Texas	186 000
Monsanto - Texas City,	Texas	150 000
Koppers - Kobuta,	Penna	74 700
Carbide + Carbon Chemical, Institute,	W. Va.	48 000
Others		27 000
	Total	509 700

Government - Dow - Los Angeles 57 000

Grand Total

Gulf Area		Pacific Coast	Northern Area	
Dow - Velasco	186,000	Gov. Dow 57,000	Koppers Kob. Pa	74700
Monsanto - T.C.	150,000		C+C., Institute W.Va	48000
Others, Baton Rouge	12,000		Penn. Ind Chem.	15000
			Dow Midl.	24 000
	348,000			161,700
Styrene Reg. Copoly.		Borger 17,150		
(62%)	215,136	Torrance 22,780		
		(70%) 39.930		59,306
	132,864	17070		102,406

800346

3/7/5

(3)

Styrene - Parsons

Pres. Mat'l Policy Commission predicts resin dem
1953, 460 million #, '54 - 540, '55 - 620, '56 - 710, '57 -
Seems too optimistic.

Coast demand - future

	% of Total U.S.	Total U.S. Resin	Pac. Coast	West Coast Rubber	Tot West
1953	9.0	460	41.3	36.0	77.3
54	9.1	540	49.	"	85.6
55	9.25	620	57.3	"	93.3
56	9.4	710	66.8	"	102.8
57	9.55	790	76.5	"	112.5
58	9.7	880	85.3	"	121.3

Costs

Comparing results when Gulf plants furnished Gov. with costs, it appears that L.A. produces at from 1/2 ¢ to 1 ¢ less than others. Hence no econ. obsol.

Profitability -

Production at capacity 4,750 /mo ST

Raw mat'ls as at 1952

Controllables " " "

Royalties 1/2 ¢/#

Price 21 ¢ - allowance of 2 ¢/lb for Sty shipped cost.

Pay-out 20%

800341

2/7/54.

(4)

Styrene - Parsons

Profitability Estimate

Capacity per Mo 9,500,— # / month

Revenue

Styrene 9,500,— @ .4	1995,—	
Less freight 2d on 5,500,—	110,—	
	1,885.	

Raw Mat'ls	Cost			per
Crude Benzene (79%)	599,400 Gals @ 31.6d	$189,400		
Benzene	684,— " " 48.2d	309,600		
Propane	330,— " " 4d	132,000		
		631,000	6.6	

Credits			
Toluene	1,029 — # @ 3.5d	$36,—	
Resin fraction	452,500 " 1.9	8100	
Heavy solvent	10,000 Gal. @ 32d	3,200	
Benzene lightless	107,000 # @ 1.4	1500	
Propane - Propylene	5,380,000 # @ 10.13	70,000	
Butadiene	506,000 # " 1.9	9,600	
Ethylene	5,000 # " 20d	1,000	
Still bottoms } fuel	407,— # " .27d	1,100	
Hydrogen } fuel	57,600 MCF " 6.6d	3,800	
Residue gas } fuel	178,500 " " 10.2d	18,200	
		$153,—	1.61
Net raw materials		478,000	5.04

Chemicals		.4d
Utilities		1.2
Controllable		1.49
Insurance	2500	
Administrative	25,—	
Research	15,—	
Royalties	47.5	

(over) 1.0

800342

Basis for Schedule "West Coast - GR-S, Butadiene and Styrene Plants" consolidated (Shell bid)

Production of Net GR-S - - - - - - - - 59.996 Long Tons
Based on operating Butadiene Plant at rate of 46.000 Short Tons new plus recycle. - total 52,170 Short Tons Styrene requirement at this rate is 14.705 Short Tons (yield factors 1.15 for Butadiene and 408 for Styrene)

Production of Styrene (80%) 50 000 Short Tons
Of this production 14.705 Short Tons needed for the GR-S Plant - balance available for sale

Sales GR-S assumed 80% sold on West Coast, balance in East
Styrene assumed 15% sold on West Coast, balance in East or Gulf

Sales Prices GR-S 21.00 ¢ per pound Plus arbitrary freight advantage on West Coast sales of 0.50 ¢ per pound and penalty of 0.77 ¢ per pound on Eastern sales. (Actual freight by rail Borger to California is 1.70 ¢/lb but assumed some Gulf butadiene would be sold on West Coast at competitive prices. Actual difference freight Torrance, Calif to Akron vs Baton Rouge to Akron is 0.77 ¢/lb)
Styrene - 16.00 ¢ per pound
Penalty of 0.50 ¢ per pound on sales

800347

made in the East or Gulf

Cost of Sales

Butadiene — 9.785 ¢ /lb.

Used Shell price for butylenes (16.00¢) 4.37

RFC conversion costs — 5.04

Royalties — 0.375

9.785 ¢

Styrene — 8.00 ¢ / lb

Used Shell figures of 45¢/gal benzene and 3½¢/gal propane

Conversion - gR-S — 5.15 ¢/lb.

Used RFC costs.

Royalty on Styrene 1¼% of sales price of 16.00¢/lb

Depreciation — 9%

Used Shell rate.

Other Expenses

Administrative and Selling — 8% of Sales.

Shell's rate.

Insurance — .75¢ / $100.

S & P estimated rate.

Interest — 4% on 75% of Fixed Assets.

Assume maximum borrowing

Research and Development — $500 000

Shell estimate.

Working Capital — $12 000 000

Shell estimate.

800348

Column (4) Fixed Assets Total -- $19,395,000
Value for 5 year payout.

Return

Column (1) Fixed Assets total $14,735,000
This is RFC net book value including work in process + surplus property as of 4/30/52

Column (2) Fixed Assets total $41,956,000
Replacement Cost new less Depreciation and Obsolescence as of 4/30/52

Column (3) Fixed Assets Total $15,490,000
Value to give return of 15% on total Investment (Fixed Assets plus Working Capital)

Return on Investment
(all figures in thousands)

	(1)	(2)	(3)	(4)
Fixed Assets	$14,735	$41,956	15,490	$29,620
Return on Capital				
Total Investment (F.A. plus W.C.)	15.57%	4.63%	15.00	8.55%
Cash Investment (25% of F.A. plus W.C.)	26.54	11.10	25.94	16.76%
Pay-out (years): (by net after taxes plus depreciation)				
Total Investment	4.87 yrs.	8.60 yrs	4.99 yr	6.43 yr
Fixed Assets	2.68 yrs.	6.69 yrs	2.81 -	5.00 yr.

800349

A.D.H.

Shell - Torrance - Butadiene

Davis & Rew advise that feed prep and dehydro units at Torrance are the same as at Cities Service - Lake Charles which has an annual capacity from new stock of 63000 S.T. They state that without S.O. of Cal. capacity at Torrance is about 45,000 from new stock (Crowkrite's figure is 48,000) and that the bottleneck is steam capacity. It would seem, therefore that in figuring earning power of Shell-Torrance the rated capacity should be taken at 63000 (from new stock) and then deduct the cost of a new boiler. Perhaps cost of such a boiler can be taken from Lake Charles which installed a new boiler several years ago.

800399

Mr. Holmquist - Room 1120

Mr. Holland.

I believe my summary sheet allows $3,000,000. It should be corrected to $3,480,000.

The estimate seems reasonable to the operating department, but it was surprised to find the dehydro unit needs as much and feed prep + utilities so little

CGH.

800607

2059775

POOR LEGIBILITY

ONE OR MORE PAGES IN THIS DOCUMENT ARE DIFFICULT TO READ
DUE TO THE QUALITY OF THE ORIGINAL