DEPAR...ENTAL CORRESPO... ENCE Ethyl Benzene, Etc.

DATE February 22, 1966

SUBJECT Prospect No. 902; Ethyl Benzene-Ortho-Xylene Fractionation - Evaluation Memorandum

TO File DEP'T

FROM E. W. Long DEP'T

The Sulfolane aromatics extraction unit will produce 1000 - 1100 BPCD of a C_8 aromatics stream consisting of ethyl-benzene, orthoxylene, metaxylene, and paraxylene. The C_8 aromatics will be sold as such under contract until Jan. 1, 1967.

This prospect proposes installation of fractionating equipment and auxiliaries to separate the C_8 aromatics into a 99% pure ethylbenzene stream, orthoxylene, and a meta-paraxylene mix. The unit would consist of two fractionating columns, gas fired reboilers and air cooled condensers. Also, it is proposed that the unit be capable of charging 1630 BPCD to handle outside streams expected to be available. The tax depreciable investment would be $2.1 million based on contractors estimates. Capitalized interest and overhead increase the investment to $2,289,000 total.

The C_8 aromatics will be sold until Jan., 1967, for 15.75 - 16.0¢/gal.; 16¢/gal was used in this evaluation as raw material cost. Negotiations with potential customers indicate the following prices for the products:

Ethylbenzene	27¢/gal
Orthoxylene	17¢/gal
Meta-paraxylene mix	19¢/gal

PLAINTIFF'S EXHIBIT

CC-322

Yields and the results of the evaluation are summarized as follows:

	CASE I	CASE II
Raw Materials		
Coastal	1100 BPCD	1100 BPCD
Other	530	-
Total Raw Materials:	1630 BPCD	1100 BPCD
Products		
Ethyl Benzene	250 BPCD	169 BPCD
Orthoxylene	375	253
Meta-Paraxylenes	1005	678
	1630 BPCD	1100 BPCD
Payout after taxes and interest expense:	4.8 years	6.9 years
Return on investment:	21.43%	12.67%

The payout and return at capacity are acceptable but at the lower rate they are marginal. A unit designed for only the 1100 B/D Coastal feed would require about $1.8 million total investment and payout in 5.4 years.

Since it appears that processing outside feed will be part of any sales arrangements made, it is recommended that the larger unit be approved in principal pending sales negotiations and the necessary design and engineering begun.

F-317

CED0007226

It may be necessary later to change the design somewhat because of the volume and characteristics of the outside feed decided on, but the cost of changing the design should be considerably less than the cost of delaying onstream time.

A breakdown of the operating costs estimate is attached.

E. W. Long

E. W. Long

bh

<u>ETHYL BENZENE/ORTHOXYLENE FRACTIONATION</u>

Operating Costs - 1630 BPCD Charge

	$/YEAR
Fuel:	
95 MM BTU/hr. @ 15¢/MM BTU	124,800
Power:	
675 KW @ .64¢/KWH	37,800
Demand Charge @ $1.25/KW/Mo.	10,100
Water:	
20 GPM	nil
TOTAL UTILITIES:	172,700
Maintenance:	42,000
Lab & Technical:	3,700
Other Fixed Costs @1%	21,000
TOTAL:	$239,400

COASTAL STATES GAS PRODUCING COMPANY
AUTHORITY FOR EXPENDITURE
APPROVAL OF ORIGINAL ESTIMATE

AFE NO. ______

DATE Feb. 23, 1966

DEPARTMENT AND COMPANY Coastal States Petrochemical Company

A. F. E. NAME Ethylbenzene - Orthoxylene Fractionation

PROPERTY NAME ______

GEOGRAPHIC LOCATION Corpus Christi Refinery

DESCRIPTION & PURPOSE OF PROSPECT
The prospect provides for facilities to separate the C_8 aromatics that will be produced in the Sulfolane Unit into ethylbenzene, orthoxylene, and a meta-paraxylene mix. The three products will sell for an average $8.30/bbl. whereas the C_8 aromatic mixture sells for $6.72/bbl.

PROSPECT EVALUATOR (SIGNATURE) E. W. Long E.W. Long

HAS ECONOMIC EVALUATION BEEN PERFORMED? YES [X] NO [ ]

IF NOT, EXPLAIN ______

SUMMARY OF EVALUATION:

1 - TOTAL COMPANY COST PER COST ESTIMATE $ 2,289,000
2 - OTHER COST (DESCRIBE) $ ______
3 - PAYOUT 6.9 YRS.
4 - RETURN ON INVESTMENT 12.67 %
5 - INDENTURE CASH THROW - FIRST YEAR 19.68 %

INVESTMENT ANALYSIS SUMMARY:

FINANCIAL OBJECTIVES ACCEPTABLE [ ] NOT ACCEPTABLE [ ]

REVIEWED BY (SIGNATURE AND DATE) ______

JUSTIFICATION FOR PROSPECT IF FINANCIAL OBJECTIVES ARE "NOT ACCEPTABLE" ______

APPROVALS REQUIRED	SIGNATURES	DATE

JOINT OWNER PARTICIPATING? YES [ ] NO [ ] NOT APPLICABLE (COASTAL STATES 100% W.I.) [ ]

OPERATOR (IF OTHER THAN COASTAL STATES) ______

F-553 (9/65)

CED0007229

TAL STATES GAS PRODUCING CO.
AUTHORITY FOR EXPENDITURE - COST ESTIMATE
CAPITAL ADDITION
REFINING

AFE NUMBER ____

COMPANY NAME Coastal States Petrochemical Company NUMBER ____

AFE NAME Ethylbenzene - Orthoxylene Fractionation PROSPECT NUMBER 902

AFE DISCRIPTION Fractionation of Sulfolane C_8 Aromatics Product

LOCATION Corpus Christi Refinery LOCATION NUMBER ____ STATE Texas

PROJECT PURPOSE Upgrade C_8 Aromatics Production

Portion of Company Cost Scheduled for next Fiscal Year	ACTIVITY Code	ACTIVITY Description	
$ ____	61	☐ Crude Refining Fac.	ESTIMATED STARTING DATE Immediately
	62	☒ Petrochemical Fac.	ESTIMATED COMPLETION DATE 1/1/67
	69	☐ Common Plant Fac.	MASTER AFE NUMBER ____
			REGULATORY DOCKET ____
			ENGINEER Rex Harvill

REFINING:	Materials - New	0101	$
	Materials - Used	0102	
	Installation - Outside Contract - Turnkey	0103	2,100,000
	Installation - Company Direct	0104	
	Other Company Direct Cost	0105	
	TOTAL		$
STORAGE TANKS:	Materials - New	0501	$
	Materials - Used	0502	
	Installation - Outside Contract	0503	
	Installation - Company Direct	0504	
	Other Company Direct Cost	0505	
	TOTAL		$
OTHER FACILITIES:	Materials - New	0701	$
	Materials - Used	0702	
	Installation - Outside Contract	0703	
	Installation - Company Direct	0704	
	Other Company Direct Cost	0705	
	Land and Land Rights	0706	
	TOTAL		$
GENERAL PROPERTY:	Materials - New	0801	$
	Materials - Used	0802	
	Installation - Outside Contract	0803	
	Installation - Company Direct	0804	
	Other Company Direct Cost	0805	
	TOTAL		$
	TOTAL DIRECT COST		$
INDIRECT AND OTHER:	Other Owner Share	9809	( )
	Company Cost Before Overhead and Interest		$
	Overhead	9209	157,500
	Interest	9109	31,500
	TOTAL COMPANY COST		$2,289,000

PREPARED BY E. W. Long DATE Feb. 23, 1966 AFE NUMBER ____

F-565 (9/65)

CED0007230

COASTAL STATES GAS PRODUCING COMPANY AFE OR PROSPECT NO.

INVESTMENT STUDY DATE 02/16/66

ETHYL BENZENE & O-XYLENE FRACTIONATION
CASE II

INITIAL LOAN DATA

	INTEREST RATE	INITIAL BALANCE	DEBT SERVICE
SYSTEMS AND FACILITIES LOAN	5.500%	$	75%
PRODUCTION ACQUISITION LOAN	%	$	%
SUPPLEMENTAL LOAN	5.500%	$	25%
OPERATING FUND LOAN	5.500%	$	

COASTAL STATES GAS PRODUCING COMPANY AFE OR PROSPECT NO.

DATE 2/16/66 PAGE 2

YEAR	ANNUAL VOLUME BBLS	GROSS INCOME	PURCHASE COST	GROSS SPREAD	ADVALOREM TAXES	OPERATING EXPENSES	OVERHEAD	NET
1	401,775	$ 3,335,536	$ 2,699,928	$ 635,608	$	$ 185,055	$	$ 450,553
2	401,775	3,335,536	2,699,928	635,608		185,055		450,553
3	401,775	3,335,536	2,699,928	635,608		185,055		450,553
4	401,775	3,335,536	2,699,928	635,608		185,055		450,553
5	401,775	3,335,536	2,699,928	635,608		185,055		450,553
6	401,775	3,335,536	2,699,928	635,608		185,055		450,553
7	401,775	3,335,536	2,699,928	635,608		185,055		450,553
8	401,775	3,335,536	2,699,928	635,608		185,055		450,553
9	401,775	3,335,536	2,699,928	635,609		185,055		450,553
10	401,775	3,335,536	2,699,928	635,608		185,055		450,553
11	401,775	3,335,536	2,699,928	635,608		185,055		450,553
	4,419,525	$ 36,690,896	$ 29,699,208	$ 6,991,688	$	$ 2,035,605	$	$ 4,956,083

TENTATIVE RUN — COASTAL STATES GAS PRODUCING COMPANY — AFE OR PROSPECT NO.

SUBJECT TO EVALUATION AND INVESTMENT REVIEW — ECONOMIC EVALUATION — DATE 2/16/66 — PAGE 3

DIRECT INVESTMENT	$	2,289,000
WORKING CAPITAL		
TOTAL ORIGINAL INVESTMENT	$	2,289,000

YEAR	GROSS INCOME	DIRECT EXPENSES	OVERHEAD	CASH INCOME TAXES	CASH FLOW BEFORE INTEREST FOR RETURN	INTEREST EXPENSES	CASH FLOW AFTER TAXES AND INTEREST FOR PAYOUT	DISCOUNTED CASH FLOW AFTER TAXES BEFORE INTEREST
1	$ 635,608	$ 185,055	$	$	$ 450,553	$ 87,931	$ 362,622	$ 423,718
2	635,608	185,055			450,553	72,630	377,923	376,076
3	635,608	185,055			450,553	56,682	393,871	333,792
4	635,608	185,055		93,719	356,834	41,802	315,032	234,636
5	635,608	185,055		120,188	330,365	29,057	301,308	192,807
6	635,608	185,055		141,031	309,522	16,745	292,777	160,332
7	635,608	185,055		158,982	291,571	4,799	286,772	134,052
8	635,608	185,055		171,276	279,277		279,277	113,961
9	635,608	185,055		179,460	271,093		271,093	98,184
10	635,608	185,055		183,852	266,701		266,701	85,733
11	635,608	185,055		183,852	476,701		476,701	136,007
	$ 6,991,688	$ 2,035,605	$	$ 1,232,360	$ 3,933,723	$ 309,646	$ 3,624,077	$ 2,289,298

RETURN 12.666% PAYOUT 6.9 YRS

CED0007233

TENTATIVE RUN — COASTAL STATES GAS PRODUCING COMPANY — AFE OR PROSPECT NO.

SUBJECT TO EVALUATION AND INVESTMENT REVIEW — FINANCIAL EVALUATION — DATE 2/16/66 — PAGE 4

DIRECT INVESTMENT	$ 2,289,000
WORKING CAPITAL	
TOTAL INVESTMENT	$ 2,289,000

YEAR	GROSS INCOME	DIRECT EXPENSES	OVERHEAD	CASH THROW FOR INDENTURE	INTEREST EXPENSE	BOOK DD&A	INCOME BEFORE TAXES	BOOK INCOME TAXES	BOOK INCOME
1	$ 635,608	$ 185,055	$	$ 450,553	$ 87,931	$ 189,000	$ 173,622	$ 83,321	$ 90,301
2	635,608	185,055		450,553	72,630	189,000	188,923	90,664	98,259
3	635,608	185,055		450,553	56,682	189,000	204,871	98,317	106,554
4	635,608	185,055		450,553	41,802	139,000	219,751	105,458	114,293
5	635,608	185,055		450,553	23,057	189,000	232,496	111,574	120,922
6	635,608	185,055		450,553	16,745	189,000	244,808	117,483	127,325
7	635,608	185,055		450,553	4,799	189,000	256,754	123,216	133,538
8	635,608	185,055		450,553		189,000	261,553	125,519	136,034
9	635,608	185,055		450,553		189,000	261,553	125,519	136,034
10	635,608	185,055		450,553		189,000	261,553	125,519	136,034
11	635,608	185,055		450,553		189,000	261,553	125,519	136,034
	$ 6,991,688	$ 2,035,605	$	$ 4,956,083	$ 309,646	$ 2,079,000	$ 2,567,437	$ 1,232,109	$ 1,335,328

YEAR	INDENTURE CASH THROW
1	19.68 %
2	19.68 %
3	19.68 %
4	19.68 %
5	19.68 %

THIRD YEAR FPC RETURN	14.39 %
CONTRACT DIFFERENTIAL @ 6.00%	$3,656,937
BOOK RETURN ON GROSS ASSETS	11.42 %

CED0007234