RETURN TO 1998 ROD AR INDEX

4.1.7

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02254-9149

REPLY TO ATTENTION OF

March 16, 1992

SDMS DocID 46232

Mr. Alan Fowler
Ebasco Services Incorporated
211 Congress Street 8th Floor
Boston, MA 02110-2410

Superfund Records Center
SITE: New Bedford
BREAK: 04.01
OTHER: 46232

Dear Alan:

Enclosed is the cost estimate for the remedial alternatives developed for the bay portion of the New Bedford Harbor Superfund site. The package consists of the following:

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Please review the information and give me a call at 647-8895 if there are any questions.

Sincerely,

Mark J. Otis
Project Manager

Alternative Bay-2 Dredging and Shoreline Disposal

Area A & B (67,000 cy)

Equipment:	Cutterhead Dredge (12")	$65,000 per month
	2 - 3,000 cy scows	$40,000 " "
	Tugboat	$30,000 " "
	Workboat	$3,000 " "
	Pumpout Operation	$85,000 " "
Total Direct Cost		$223,000 per month

Production Rate: 500 cy per day or 12,500 cy per month
Duration: 5.4 months
Total Direct Cost (Areas A& B): $1,204,200

Note:
1) Dredge operates 8 hours per day, 6 days per week.
2) 20% solids content in dredge slurry
3) No overflow from scow allowed
4) Pumpout operation consists of a second small dredge, pipeline, and support equipment.

Area C (53,300 cy)

Equipment:	15 cubic yard clamshell dredge	$390,000 per month
	Tugboat	$60,000 " "
	Launch	$7,500 " "
	3-3000 cy capacity scows	$80,000 " "
	Pumpout Operation	$150,000 " "
Total Direct Cost		$687,500 per month

Production Rate: 3000 cy per day or 75,000 cy per month
Duration: 0.7 months
Total Direct Cost (Area C): $488,600

Note:
1) Dredge operates 24 hours per day (20 hours effective time).
2) Assume 50% solids content and a scow with 2500 cy effective capacity.
3) Based on 20 swings per hour and an effective bucket capacity of 7.5 cy, a production rate of 150 cy per hour is possible.
4) No overflow from scow allowed.
5) Pumpout operation is similar to areas A and B.

Total Direct Cost (Alternative Bay 2) $1,692,800

* cost for CDF 7 and water treatment to be provided by others

Alternative Bay-2
Dredging Area A & B

DREDGE SIZE = 10 in. Pump into Scow

OPERATING COSTS

PAYROLL	NO.	MONTH SALARY	AMOUNT
PROJECT MGR	1	$4,000	$4,000
SUPERINTENDENT	1	$7,000	$7,000
CAPTAIN	0	$0	$0
CHIEF ENGR.	0	$0	$0
CIVIL ENGR.	0	$0	$0
OFFICE MGR	0	$0	$0
OFFICE PERSONNEL	1	$2,000	$2,000
SUBTOTAL....			$9,000
TAXES,INS.,FRINGES.....		29.8%	$2,682
MANAGEMENT PAYROLL.....>			$10,682 per w/mo

LEVERMAN	1	$16.72	$16.72
WATCH ENGINEER	0	$16.07	$0.00
DREDGE MATES	1	$16.64	$16.64
TUGMASTER	1	$17.82	$17.82
LAUNCHMEN	0	$14.71	$0.00
MAINTENANCE ENGINEERS	0	$17.77	$0.00
EQUIPMENT OPERATORS	0	$16.07	$0.00
WELDERS	0	$17.51	$0.00
OILERS	0	$15.06	$0.00
DECKHANDS	2	$14.71	$29.42
ELECTRICIAN	0	$16.07	$0.00
GENERAL DUMP FOREMAN	0	$14.71	$0.00
BOSUNAN	1	$14.71	$14.71
YARD AND SHORE MEN	0	$14.82	$0.00
CREW TOTAL	6 MEN		$97.02 per hour

SHIFTS/DAY	1
SHIFT LENGTH	8 hrs
DAYS/WEEK	6 Days

Work	48 hrs/wk	
PAY ED HRS /WK @ 4.20wk8.5wkD		$21,189
TAXES,INS.,FRINGES.....	51.6%	$10,978
STRB & SUBSISTENCE $40/MAN/DAY/WK/MO		$8,238
CREW PAYROLL.....		$38,405 per w/mo
+ MANAGEMENT PAYROLL.....>		$10,682 per w/mo
PAYROLL COSTS.....>		$50,986 per w/mo

ATTENDANT PLANT	2-300HP BOOM	$41,000
	TUGBOAT	$21,000
	WORKBOAT	$7,000
TOTAL		$70,000

PLANT	
DEPRECIATION COST.....	$7,618
EST. TOTAL PLANT H.P. 378 HP	
FUEL	$7,896
WATER,LUBES,SUPPLIES	$1,187
DREDGE WEAR(PLYS,PIPE,CUTTER)	$1,000
REPAIR & DRYDOCK	$802
MISC. SUPP. (MOTEL PIPE, ETC.)	$1,000
YARD COSTS	$800
PLANT COSTS.....	$24,782
+ PAYROLL COSTS.....	$50,986
MONTHLY OPERATING COSTS=	$75,768
TOTAL W/BOOM PUMPOUT	$21,768

Taxes, Insurance and Fringes on Labor
(based on Decision Number WV-1

Social Security	7.65%
Workmen's Compensation	11.51%
Federal and State Unemployment Tax	3.71%
State Liability Tax	3.11%
Fringes... $2.71 /HR.= 8%	24.78%
8 paid hol.	2.17%
TAXES,INS.,FRINGES.....CREW....	51.8%
-(BENEFIT DIFFERENTIAL)	22.2%
TAXES,INS.,FRINGES.....MANAGEMENT..	29.6%

Level gross crew wage = $21.72 per person

Alternative Bay - 2
Dredging Area A&B
Scow Pumpout

>DREDGE SIZE = 10 in. Scow pumpout

OPERATING COSTS

PAYROLL	NO.	MONTH BASIS	AMOUNT
PROJECT MGR	1	$4,000	$4,000
SUPERINTENDENT	1	$3,000	$3,000
CAPTAIN	0	$0	$0
CHIEF ENGR.	0	$0	$0
CIVIL ENGR.	0	$0	$0
OFFICE MGR	0	$0	$0
OFFICE PERSONNEL	1	$2,000	$2,000
SUBTOTAL....			$9,000
TAXES,INS.,FRINGES.....		40.5%	$3,647
MANAGEMENT PAYROLL.....>			$12,647 per w/mo

LEVERMAN	1	$18.77	$18.77
WATCH ENGINEER	0	$18.03	$0.00
DREDGE MATES	1	$16.64	$16.64
TUGMASTER	0	$17.52	$0.00
LAUNCHMEN	1	$14.71	$14.71
MAINTENANCE ENGINEERS	0	$17.77	$0.00
EQUIPMENT OPERATORS	0	$16.03	$0.00
WELDERS	0	$17.51	$0.00
OILERS	0	$15.38	$0.00
DECKHANDS	2	$14.71	$29.42
ELECTRICIAN	0	$16.32	$0.00
GENERAL DUMP FOREMAN	0	$14.71	$0.00
SCOWMAN	0	$14.71	$0.00
YARD AND SHORE MEN	2	$14.52	$29.04
CREW TOTAL	7 MEN		$108.58 per hour

SHIFTS/DAY	1
SHIFT LENGTH	8 Hrs
DAYS/WEEK	6 Days

Work	48 Hrs/Wk		
PAY 52 HRS /WK @ 4.20%B/W/O			$23,710
TAXES,INS.,FRINGES.....		52.5%	$12,454
OTHR & SUBSISTENCE $40/MAN/DAY/WK/MO			$7,274
CREW PAYROLL.....>			$43,438 per w/mo
+ MANAGEMENT PAYROLL.....>			$12,647 per w/mo
PAYROLL COSTS.....>			$56,085 per w/mo

BOOSTER 150 HP

	RENTAL RATE PER MONTH	$7,500
(NOT USED)	FUEL	$0
	WATER, LUBE, SUPPLIES	$0
	TOTAL	$0

PLANT

	DAMPER-OP COST.....	$7,615 *
EST. TOTAL PLANT H.P.	375 HP	
FUEL		$2,895 *
WATER,LUBE,SUPPLIES		$1,187 *
DREDGE WEAR/PUMP,PIPE,CUTTER		$1,000
REPAIR & DAMAGE		$652 *
3,000 LF OF FLOAT PIPE @ $5.00/LF		$15,000
MISC. EQUIP. (PIPE EQUIP,FLOATS,ETC.)		$1,000
YARD COSTS		$200
PLANT COSTS.....		$27,450
+ PAYROLL COSTS.....		$56,085

*See Attached "Marine Equip. Costs"

MONTHLY OPERATING COSTS= $83,545

Taxes, insurance and fringes on labor
(based on Decision Number NAF-H)

Social Security	7.65%
Workman's Compensation	10.5%
Federal and State Unemployment Tax	3.71%
State Liability Tax	3.00%
Fringes... $2.71 /HR.+ 8%	25.47%
E paid vol.	1.0%
TAXES,INS.,FRINGES.....CREW...	52.5%
-(BENEFIT DIFFERENTIAL)	12.0%
TAXES,INS.,FRINGES.....MANAGEMENT..	40.5%

(ave. gross crew wage = $20.75 per hour)

OWNERSHIP & OPERATING

MARINE EQUIPMENT COST

1. PERTINENT DATA

a. Equipment Description.....>	12" CUTTERHEAD DREDGE
b. Model & Series.....>	Ellicot 370 Portable Dredge
c. Present Year.....>	1991
(1) Economic Index.(APP.E).....>	4255
d. Year Manufactured.....>	1988
(1) Economic Index.(APP.E).....>	3958
e. Equipment Cost	
(1) Acquisition Price.....>	$300,000
(2) Capital Improvements.....>	$0
f. Prime Engine Horsepower.....>	322 h.p.
g. Secondary Engine(s) Horsepower.	
(1) Electrical Generators -	15 h.p.
(2) Hydraulic System -	0 h.p.
(3) Cutter Head Drive -	41 h.p.
(4) Hydraulic Water Jet -	0 h.p.
Total Secondary H.P.	56 h.p.
h. Fuel Type.....>	DIESEL
(1) Cost/Gal.(APP.B).....>	$1.10 /gal

2. TABLE H-1 DATA:

a. Life (yrs).....>	20 yrs
(1) Annual Use-Months..(para 3)...>	7 mos
(2) Monthly Usage (estimated hrs).>	600 Hours for Ownership Costs 200 Hours For Operating Costs
b. Salvage Value Factor.....>	0.05
c. Prime Engine Fuel Factor.....>	0.044
d. Secondary Engine Fuel Factor.....>	0.039
e. WLS Factor.(Water,Lube & Supplies).>	0.33

Estimated by:_____. Checked by:_____. Date_____.

2. TABLE H-1 DATA: (Cont'd)

f. LAF (Labor Adjustment Factor APP B)> 1.04

g. Repair Cost Factor.....> 0.90

h. Annual Ownership Expense Factors...:

(1) Depreciation Factor (%).....> 4.75%

(2) OFD Factor (%).....> 3.65%

Total Hourly Ownership Percent..(4.75% + 3.65%) = 8.40%

3. OWNERSHIP COSTS

a. Equipment Cost = (Acquisition Price + Capital Improvements)

(#300000) + #0) = #300,000

b. Annual Ownership Cost = (Equipment Cost x Annual Ownership Percent)

(1) Annual Ownership Expense:
(#300000 x 8.40%) = #25,290

(2) Monthly Ownership Expense:
(#25290 / 7 mo.) = #3,613

(3) Hourly Ownership Expense:
(#3613 / 500 hrs.) = #7.23

c. Standby Allowance:
= [((.50 x Depr. %) + OFD) x Equipment Cost]+Generator Allowance *

* NOTE: (If Applicable) +Generator Allowance (see Appendix H para 5)
= ((Generator H.P. / Total Secondary H.P.) x Secondary Fuel Cost)

(1) Annual Standby Expense:
[((.50 x 4.75%) + 3.65%) x #300000] = #18,165

(2) Monthly Standby Expense: (#18165/7mo.) = #2,595

(3) Hourly Standby Expense: (#2595/500hrs) = #5.19

* (If Applicable) Generator Allowance:
((15 h.p. / 56 h.p.) x #2.40) = + #0.64

Total Hourly Standby Allowance = #5.83

Estimated by:_____. Checked by:_____. Date_____.

4. ESTIMATED HOURLY OPERATING COST:

a. Fuel Cost = (Engine Fuel Factor x H.P. x Fuel Cost/Gal)

(1) Prime Engine Fuel:
(0.044 x 322 h.p. x $1.10/gal) = $15.58 /hr

(2) Secondary Engine Fuel:
(0.039 x 56 h.p. x $1.10/gal) = $2.40 /hr

b. WLS Cost = (WLS Factor x Hourly Fuel Cost)

(1) Prime Engine WLS: (0.20 x $15.58 /hr) = $3.14 /hr

(2) Second Engine WLS: (0.33 x $2.40/hr) = $0.79 /hr

c. Repair Cost = (Equip. Cost x Repair Cost Factor x EAF x LAF./Life (hrs)

(1) EAF = (Econ Index Present Yr / Econ Index Yr of Mfg).

(4255 Pres. Yr / 3958 Yr of Mfg) = 1.075

(2) Life (hrs) = (20yrs x 7mo x 50hrs) = 7,000 hrs

(3) Repair Cost:
($300000 x 0.50 x 1.075 x 1.04)/70000 hrs = $4.01 /hr

d. Subtotal Operating Cost = (Fuel + WLS + Repairs)
($15.58 + $2.40 + $3.14 + $0.79 + $4.01) = $26.22 /hr

5. Subtotal Hourly Ownership & Operating Cost.
($7.23 /hr + $26.22 /hr) = $33.45 /hr

6. Subtotal Monthly Rate = (Hourly Total x Use Hours/Month)
($7.23 /hr x 500 hrs) = $3,615 /mo Total Cost / Mo
($26.22 /hr x 200 hrs) = $5,644 /mo $9,259

7. Additive Item(s) (Direct monthly cost to be estimated)

(1)
(2)
(3) SEE ATTACHED
(4)
(5)
(6)

/mo

Subtotal Estimated Additive Items $0

8. Total Monthly Rate..... $9,259 /mo

6

Estimated by:_____. Checked by: . Date

M A R I N E E Q U I P M E N T C O S T

1. PERTINENT DATA

a. Equipment Description.....> 3000 CY SCOW

b. Model & Series.....> BOTTOM DUMP

c. Present Year.....> 1991

(1) Economic Index.(APP.E).....> 4255

c. Year Manufactured.....> 1980

(1) Economic Index.(APP.E).....> 2922

e. Equipment Cost

(1) Acquisition Price.....> $1,001,000

(2) Capital Improvements.....> $0

f. Prime Engine Horsepower.....> 0 h.p.

g. Secondary Engine(s) Horsepower.

(1) Electrical Generators	-	15 h.p.
(2) Hydraulic System	-	150 h.p.
(3) Cutter Head Drive	-	0 h.p.
(4) Hydraulic Water Jet	-	0 h.p.
Total Secondary H.P.		165 h.p.

h. Fuel Type.....> DIESEL

(1) Cost/Gal.(APP.B).....> $1.10 /gal

2. TABLE H-1 DATA:

a. Life (yrs).....> 20 yrs

(1) Annual Use-Months.. para 2)...> 7 mos

(2) Monthly Usage (estimated hrs).> 500 Hours for Ownership Costs
200 Hours For Operating Costs

b. Salvage Value Factor.....> 0.05

c. Prime Engine Fuel Factor.....> 0.144

d. Secondary Engine Fuel Factor.....> 0.139

e. WLS Factor.(Water,Lube & Supplies).> 0.33

Estimated by:_____. Checked by:_____. Date

2. TABLE H-1 DATA: (Cont'd)

f. LAF (Labor Adjustment Factor APP E) 1.04

g. Repair Cost Factor.....> 0.81

h. Annual Ownership Expense Factors...:

(1) Depreciation Factor (%).....> 4.75%

(2) OFC Factor (%).....> 3.68%

Total Hourly Ownership Percent..(4.75% + 3.68%) = 8.43%

3. OWNERSHIP COSTS

a. Equipment Cost = (Acquisition Price + Capital Improvements)

(#1000000 + #0) = #1,000,000

b. Annual Ownership Cost = (Equipment Cost x Annual Ownership Percent)

(1) Annual Ownership Expense:
(#1000000 x 8.43%) = #84,300

(2) Monthly Ownership Expense:
(#84300 / 7 mo.) = #12,043

(3) Hourly Ownership Expense:
(#12043 / 500 hrs.) = #24.09

c. Standby Allowance:
= [((.50 x Depr. %) + OFC) x Equipment Cost]+Generator Allowance *

* NOTE: (If Applicable) -Generator Allowance (see Appendix H para 3)
= ((Generator H.P. / Total Secondary H.P.) x Secondary Fuel Cost)

(1) Annual Standby Expense:
[((.50 x 4.75%) + 3.68%) x #1000000] = #60,550

(2) Monthly Standby Expense: (#60550/7mo.) = #8,650

(3) Hourly Standby Expense: (#8650/500hrs) = #17.30

* (If Applicable) Generator Allowance:
((15 h.p. / 165 h.p.) x #7.08) = + #0.64

Total Hourly Standby Allowance = #17.94

Estimated by:_____. Checked by:_____. Date_____.

4. ESTIMATED HOURLY OPERATING COST:

a. Fuel Cost = (Engine Fuel Factor x H.P. x Fuel Cost/Gal)

(1) Prime Engine Fuel:
(0.044 x 0 h.p. x $1.10/gal) = $0.00 /hr

(2) Secondary Engine Fuel:
(0.039 x 165 h.p. x $1.10/gal) = $7.08 /hr

b. WLS Cost = (WLS factor x Hourly Fuel Cost)

(1) Prime Engine WLS: (0.33 x $0.00/hr) = $1.00 /hr

(2) Second Engine WLS: (0.33 x $7.08/hr) = $2.34 /hr

c. Repair Cost = (Equip. Cost x Repair Cost Factor x EAF x LAF)/Life (hrs)

(1) EAF = (Econ Index Present Yr / Econ Index Yr of Mfg).

(4255 Pres. Yr / 2922 Yr of Mfg) = 1.456

(2) Life (hrs) = (20yrs x 7mo x 500hrs) = 70,000 hrs

(3) Repair Cost:
($100000) x 0.30 x 1.456 x 1.04)/70000 hrs = $17.31 /hr

d. Subtotal Operating Cost = (Fuel + WLS + Repairs)
($0.00 + $7.08 + $0.00 + $2.34 + $17.31) = $26.73 /hr

5. Subtotal Hourly Ownership & Operating Cost.
($24.09 /hr + $26.73 /hr) = $50.82 /hr

6. Subtotal Monthly Rate = (Hourly Total x Use Hours/Month)
($24.09 /hr x 500 hrs) = $12,045 /mo Total Cost / Mo
($26.73 /hr x 200 hrs) = $5,346 /mo $17,391

7. Additive Item(s) (monthly cost to be estimated.

(1) /mo
(2) Dry Docking.....> $1,000 /mo
(3) Yard Costs.....> $1,000 /mo

Subtotal Estimated Additive Items $2,000 /mo

8. Total Monthly Rate..... $19,391 /mo

Estimated by:_____. Checked by:_____. Date_____.

M A R I N E E Q U I P M E N T C O S T

1. PERTINENT DATA

a. Equipment Description.....> TUGBOAT

b. Model & Series.....> V-HULL DEEP-DRIVE - TWIN SCREW

c. Present Year.....> 1981

(1) Economic Index.(APP.B).....> 4285

d. Year Manufactured.....> 1979

(1) Economic Index.(APP.B).....> 2587

e. Equipment Cost

(1) Acquisition Price.....> $500,000

(2) Capital Improvements.....> $0

f. Prime Engine Horsepower.....> 1,200 h.p.

g. Secondary Engine(s) Horsepower.

(1) Electrical Generators	-	200 h.p.
(2) Hydraulic System	-	100 h.p.
(3) Cutter Head Drive	-	0 h.p.
(4) Hydraulic water Jet	-	0 h.p.
Total Secondary H.P.		300 h.p.

h. Fuel Type.....> DIESEL

(1) Cost/Gal.(APP.B).....> $1.10 /gal

2. TABLE H-1 DATA:

a. Life (yrs).....> 20 yrs

(1) Annual Use-Months..(para 3)...> 7 mos

(2) Monthly Usage (estimated hrs).> 500 Hours for Ownership Costs
200 Hours For Operating Costs

b. Salvage Value Factor.....> 0.10

c. Prime Engine Fuel Factor.....> 0.044

d. Secondary Engine Fuel Factor.....> 0.039

e. WLS Factor.(Water,Lube & Supplies).> 0.36

Estimated by: Checked by: Date

2. TABLE H-1 DATA: (Cont'd)

f. LAF (Labor Adjustment Factor APP B)> 1.04

g. Repair Cost Factor.....> 0.90

h. Annual Ownership Expense Factors...:

(1) Depreciation Factor (%).....> 4.50%

(2) DFC Factor (%).....> 3.84%

Total Hourly Ownership Percent..(4.50% - 3.84% = 8.34%

3. OWNERSHIP COSTS

a. Equipment Cost = (Acquisition Price + Capital Improvements)

($500000 + $0) = $500,000

b. Annual Ownership Cost = (Equipment Cost x Annual Ownership Percent)

(1) Annual Ownership Expense:
($500000 x 8.34%) = $41,700

(2) Monthly Ownership Expense:
($41700 / 7 mo.) = $5,957

(3) Hourly Ownership Expense:
($5957 / 500 hrs.) = $11.91

c. Standby Allowance: *
= [((.50 x Depr. %) + DFC) x Equipment Cost]+Generator Allowance

* NOTE: (If Applicable) -Generator Allowance (see Appendix H para 3)
= ((Generator H.P. / Total Secondary H.P.) x Secondary Fuel Cost)

(1) Annual Standby Expense:
[((.50 x 4.50%) + 3.84%) x $500000] = $30,450

(2) Monthly Standby Expense: ($30450 7mo.) = $4,350

(3) Hourly Standby Expense: ($4350/500hrs) = $8.70

* (If Applicable) Generator Allowance:
((200 h.p. / 300 h.p.) x $12.87) = + $8.58

Total Hourly Standby Allowance = $17.28

Estimated by:

4. ESTIMATED HOURLY OPERATING COST:

a. Fuel Cost = (Engine Fuel Factor x H.P. x Fuel Cost/Gal)

(1) Prime Engine Fuel:
(0.044 x 1200 h.p. x $1.10/gal) = $58.08 /hr

(2) Secondary Engine Fuel:
(0.039 x 300 h.p. x $1.10/gal) = $12.87 /hr

b. WLS Cost = (WLS Factor x Hourly Fuel Cost)

(1) Prime Engine WLS: (0.36 x $58.08/hr) = $20.91 /hr

(2) Second Engine WLS: (0.36 x $12.87/hr) = $4.63 /hr

c. Repair Cost = (Equip. Cost x Repair Cost Factor x EAF x LAF)/Life (hrs)

(1) EAF = (Econ Index Present Yr / Econ Index Yr of Mfg).

(4255 Pres. Yr / 2537 Yr of Mfg) = 1.648

(2) Life (hrs) = (20yrs x 7mo x 500hrs) = 70,000 hrs

(3) Repair Cost:
($500000 x 0.90 x 1.648 x 1.04)/70000 hrs = $11.00 /hr

d. Subtotal Operating Cost = (Fuel + WLS + Repairs)
($58.08 + $12.87 + $20.91 + $4.63 + $11.00) = $107.49 /hr

5. Subtotal Hourly Ownership & Operating Cost.
($11.91 /hr + $107.49 /hr) = $119.40 /hr

6. Subtotal Monthly Rate = (Hourly Total x Use Hours/Month)
($11.91 /hr x 500 hrs) = $5,955 /mo Total Cost / Mo
($107.49 /hr x 200 hrs) = $21,498 /mo $27,453

7. Additive Item(s) (Direct monthly cost to be estimated)

(1) DRY DOCKING..... $1,000
(2) YARD COSTS..... $1,000
(3)
(4)
(5)
(6)

Subtotal Estimated Additive Items $2,000 /mo

8. Total Monthly Rate..... $29,453 /mo

Estimated by:_____. Checked by:_____. Date

M A R I N E E Q U I P M E N T C O S T

1. PERTINENT DATA

a. Equipment Description.....> WORKBOAT / LAUNCH

b. Model & Series.....> 20' FLAT BOAT - TWIN 75 HP

c. Present Year.....> 1991

(1) Economic Index.(APP.E).....> 4255

d. Year Manufactured.....> 1979

(1) Economic Index.(APP.E).....> 2747

e. Equipment Cost

(1) Acquisition Price.....> $20,000

(2) Capital Improvements.....> $0

f. Prime Engine Horsepower.....> 150 h.p.

g. Secondary Engine(s) Horsepower.

(1) Electrical Generators	-	0 h.p.
(2) Hydraulic System	-	0 h.p.
(3) Cutter Head Drive	-	0 h.p.
(4) Hydraulic Water Jet	-	0 h.p.
Total Secondary H.P.		0 h.p.

h. Fuel Type.....> GAS

(1) Cost/Gal.(APP.B).....> $1.10 /gal

2. TABLE H-1 DATA:

a. Life (yrs).....> 10 yrs

(1) Annual Use-Months..(para 3)...> 7 mos

(2) Monthly Usage (estimated hrs).> 500 Hours for Ownership Costs
200 Hours For Operating Costs

b. Salvage Value Factor.....> 0.05

c. Prime Engine Fuel Factor.....> 0.062

d. Secondary Engine Fuel Factor.....> 0.052

e. WLS Factor.(Water,Lube & Supplies).> 0.30

Estimated by:_____. Checked by:_____. Date_____

2. TABLE H-1 DATA: (Cont'd)

f. LAF (Labor Adjustment Factor APP B)> 1.04

g. Repair Cost Factor.....> 0.81

h. Annual Ownership Expense Factors...:

(1) Depreciation Factor (%).....> 9.50%

(2) OFC Factor (%).....> 3.84%

Total Hourly Ownership Percent..(9.50% + 3.84%) = 13.34%

3. OWNERSHIP COSTS

a. Equipment Cost = (Acquisition Price + Capital Improvements)

($20000 + $0) = $20,000

b. Annual Ownership Cost = (Equipment Cost x Annual Ownership Percent)

(1) Annual Ownership Expense:
($20000 x 13.34%) = $2,665

(2) Monthly Ownership Expense:
($2665 / 7 mo.) = $381

(3) Hourly Ownership Expense:
($381 / 500 hrs.) = $0.76

c. Standby Allowance:
= [((.50 x Depr. %) + OFC) x Equipment Cost]+Generator Allowance

* NOTE: (If Applicable) -Generator Allowance (see Appendix - para 5)
= ((Generator H.P. / Total Secondary H.P.) x Secondary Fuel Cost)

(1) Annual Standby Expense:
[((.50 x 9.50%) + 3.84%) x $20000] = $1,718

(2) Monthly Standby Expense: ($1718/7mo.) = $245

(3) Hourly Standby Expense: ($245/500hrs) = $0.49

* (If Applicable) Generator Allowance:
((0 h.p. / 0 h.p.) x $0.00) = + $0.00

Total Hourly Standby Allowance = $0.49

Estimated by:_____. Checked by:_____ . Date

4. ESTIMATED HOURLY OPERATING COST:

a. Fuel Cost = (Engine Fuel Factor x H.P. x Fuel Cost/Gal)

(1) Prime Engine Fuel:
(0.062 x 150 h.p. x $1.10/gal) = $10.23 /hr

(2) Secondary Engine Fuel:
(0.052 x 0 h.p. x $1.10/gal) = $0.00 /hr

b. WLS Cost = (WLS factor x Hourly Fuel Cost)

(1) Prime Engine WLS: (0.30 x $10.23/hr) = $3.07 /hr

(2) Second Engine WLS: (0.30 x $0.00/hr) = $0.00 /hr

c. Repair Cost = (Equip. Cost x Repair Cost Factor x EAF x LAF)/Life (hrs)

(1) EAF = (Econ Index Present Yr / Econ Index Yr of Mfg).

(4255 Pres. Yr / 3749 Yr of Mfg) = 1.135

(2) Life (hrs) = (10yrs x 7mo x 500hrs) = 35,000 hrs

(3) Repair Cost:
($20100 x 0.80 x 1.135 x 1.04)/35000 hrs = $0.54 /hr

d. Subtotal Operating Cost = (Fuel + WLS + Repairs)
($10.23 + $0.00 + $3.07 + $0.00 + $1.54) = $13.84 /hr

5. Subtotal Hourly Ownership & Operating Cost.
($0.76 /hr + $13.84 /hr) = $14.60 /hr

6. Subtotal Monthly Rate = (Hourly Total x Use Hours/Month)
($0.76 /hr x 500 hrs) = $380 /mo Total Cost /mo
($13.84 /hr x 200 hrs) = $2,768 /mo $3,148

7. Additive Item(s) (Direct monthly cost to be estimated)

(1)
(2) YARD COSTS..... $100
(3)
(4)
(5)
(6)

/mo

Subtotal Estimated Additive Items $100

8. Total Monthly Rate..... $3,248 /mo

Estimated by:_____. Checked by:_____. Date_____

Alternative Bay-2
Dredging Area C

>DREDGE SIZE = 15 CY CLAMSHELL

OPERATING COSTS

PAYROLL	NO.	MONTH SALARY	AMOUNT
PROJECT MGR	1	$4,000	$4,000
SUPERINTENDENT	1	$3,000	$3,000
CAPTAIN	0	$0	$0
CHIEF ENGR.	1	$4,000	$4,000
CIVIL ENGR.	0	$0	$0
OFFICE MGR	1	$2,800	$2,800
OFFICE PERSONNEL	1	$1,500	$1,500
SUBTOTAL....			$15,300
TAXES,INS.,FRINGES.....		39.1%	$5,975
MANAGEMENT PAYROLL.....>			$21,275 per w/mo
OPERATOR	1	$19.05	$19.05
WATCH ENGINEER	1	$18.40	$18.40
DREDGE MATES	1	$16.64	$16.64
TUGMASTER	1	$17.52	$17.52
LAUNCHMEN	1	$14.71	$14.71
MAINTENANCE ENGINEERS	0	$17.77	$0.00
EQUIPMENT OPERATORS	0	$18.03	$0.00
WELDERS	0	$17.51	$0.00
OILERS	1	$15.06	$15.06
DECKHANDS	2	$14.71	$29.42
ELECTRICIAN	0	$16.33	$0.00
GENERAL DUMP FOREMAN	0	$0.00	$0.00
DUMP FOREMAN	0	$0.00	$0.00
YARD & SHOREMAN	2	$14.53	$29.06
CREW TOTAL	10 MEN		$159.86 per hour

SHIFTS/DAY 2
SHIFT LENGTH 12 Hrs
DAYS/WEEK 7 Days

Work ..... 168 Hrs/Wk
PAY 224 HRS /WK @ 4.20WKS/WMO $150,396
TAXES,INS.,FRINGES..... 51.1% $76,780
QTRS & SUBSISTENCE $40/MAN/DAY/WK/MO $24,248

CREW PAYROLL.....> $251,424 per w/mo
+ MANAGEMENT PAYROLL.....> $21,275 per w/mo

PAYROLL COSTS.....> $272,699 per w/mo

ATTENDANT PLANT	3-3000-CY SCOW	$80,000
	TUGBOAT	$60,000
	WORKBOAT	$7,500
	TOTAL	$147,500

PLANT

OWNERSHIP COSTS		$30,105
EST. TOTAL PLANT H.P.	1,950 HP	
FUEL		$38,610
WATER,LUBE,SUPPLIES		$12,741
DREDGE WEAR(PUMP,PIPE,CUTTER)		$1,000
REPAIR & DRYDOCK		$32,450
YARD COSTS		$2,500
MISC EQUIPMENT		$1,500
TOTAL PLANT COSTS.....		$266,406
+ PAYROLL COSTS.....		$272,699

MONTHLY OPERATING COSTS= $539,105

TOTAL W/SCOW PUMPOUT.... $689,105

Taxes, insurance and fringes on labor:
(based on Decision Number N-91-1)

Social Security		7.65%
Workman's Compensation		10.51%
Federal and State Unemployment Tax		3.71%
State Liability Tax		3.00%
Fringes...	$2.71 /HR.+ 8%	24.00%
	8 paid hol.	2.19%

TAXES,INS.,FRINGES.....CREW... 51.1%
+(BENEFIT DIFFERENTIAL) 12.0%

TAXES,INS.,FRINGES.....MANAGEMENT.. 39.1%

(ave. gross crew wage = $35.63 per manhour)

Alternative Bay-2
Scow Pumpout

DREDGE SIZE = 10" SCOW PUMPOUT

OPERATING COSTS

PAYROLL	NO. MONTHLY SALARY		AMOUNT
PROJECT MGR	1	$4,000	$4,000
SUPERINTENDENT	1	$3,000	$3,000
CAPTAIN	0	$0	$0
CHIEF ENGR.	0	$0	$0
CIVIL ENGR.	0	$0	$0
OFFICE MGR	0	$0	$0
OFFICE PERSONNEL	1	$2,000	$2,000
SUBTOTAL....			$9,000
TAXES,INS.,FRINGES.....		39.1%	$3,515
MANAGEMENT PAYROLL.....)			$12,515 per w/mo

LEVERMAN	1	$15.77	$15.77
WATCH ENGINEER	0	$15.49	$0.00
DREDGE MATES	1	$12.64	$12.64
TUGMASTER	0	$17.52	$0.00
LAUNCHMEN	0	$14.71	$0.00
MAINTENANCE ENGINEERS	0	$17.77	$0.00
EQUIPMENT OPERATORS	0	$15.03	$0.00
WELDERS	0	$17.51	$0.00
OILERS	0	$15.06	$0.00
DECKHANDS	1	$14.71	$14.71
ELECTRICIAN	0	$16.07	$0.00
GENERAL DUMP FOREMAN	0	$0.00	$0.00
DUMP FOREMAN	0	$0.00	$0.00
YARD & SHOREMAN	2	$14.57	$29.06
CREW TOTAL	5 MEN		$79.14 per hour

SHIFTS/DAY	2	
SHIFT LENGTH	12 Hrs	
DAYS/WEEK	7 Days	

Work	168 Hrs/Wk		
PAY 224 HRS /WK @ 4.20WAGE/WMC			$74,488
TAXES,INS.,FRINGES.....		51.1%	$38,011
OTRS & SUBSISTENCE $40.MAN/DAY/WK/MO			$12,124
CREW PAYROLL.....)			$124,589 per w/mo
+ MANAGEMENT PAYROLL.....)			$12,515 per w/mo
PAYROLL COSTS.....)			$137,104 per w/mo

BOOSTER	150 HP	
RENTAL RATE PER MONTH		$7,500
(NOT USED) FUEL		$0
WATER, LUBE, SUPPLIES		$0
TOTAL		$0
PLANT		
OWERSHIP COSTS		$7,500
EST. TOTAL PLANT M.R.	TO HP	
FUEL		$7,256
WATER,LUBE,SUPPLIES		$1,187
DREDGE WEAR(PUMP,PIPE,CUTTER)		$1,000
REPAIR & DOWNTIME		$800
YARD COSTS		$200
MISC EQUIPMENT		$2,000
PLANT COSTS.....)		$10,450
+ PAYROLL COSTS.....)		$137,104
MONTHLY OPERATING COSTS=		$147,554

Taxes, insurance and fringes on labor:
(based on Decision Number 1-P.L.-1)

Social Security		7.65%
Workmen's Compensation		10.51%
Federal and State Unemployment Tax		3.70%
State Liability Tax		3.11%
Fringes...	$2.71 /HR.+ 8%	24.11%
	8 paid hol.	2.17%
TAXES,INS.,FRINGES.....CREW...		51.1%
+BENEFIT DIFFERENTIAL		12.1%
TAXES,INS.,FRINGES.....MANAGEMENT..		39.1%

(ave. gross crew wage = $25.71 per hour)

M A R I N E E Q U I P M E N T C O S T

1. PERTINENT DATA

a. Equipment Description.....>	CLAMSHELL DREDGE
b. Model & Series.....>	15 CY
c. Present Year.....>	1991
(1) Economic Index.(APP.E).....>	4255
d. Year Manufactured.....>	1980
(1) Economic Index.(APP.E).....>	2922
e. Equipment Cost	
(1) Acquisition Price.....>	$2,500,000
(2) Capital Improvements.....>	$0
f. Prime Engine Horsepower.....>	1,600 h.p.
g. Secondary Engine(s) Horsepower.	
(1) Electrical Generators -	200 h.p.
(2) Hydraulic System -	150 h.p.
(3) Cutter Head Drive -	0 h.p.
(4) Hydraulic Water Jet -	0 h.p.
Total Secondary H.P.	350 h.p.
h. Fuel Type.....>	DIESEL
(1) Cost/Gal.(APP.B).....>	$1.10 /gal

2. TABLE H-1 DATA:

a. Life (yrs).....>	20 yrs
(1) Annual Use-Months..(Case D)...>	7 mos
(2) Monthly Usage (estimated hrs).>	500 Hours for Ownership Costs 500 Hours For Operating Costs
b. Salvage Value Factor.....>	0.05
c. Prime Engine Fuel Factor.....>	0.036
d. Secondary Engine Fuel Factor.....>	0.036
e. WLS Factor.(Water,Lube & Supplies).>	0.30

Estimated by:_____. Checked by:_____. Date_____.

2. TABLE H-1 DATA: (Cont'd)

f. LAF (Labor Adjustment Factor APP E)> 1.04

g. Repair Cost Factor.....> 1.20

h. Annual Ownership Expense Factors...:

(1) Depreciation Factor (%).....> 4.75%

(2) CFD Factor (%).....> 3.68%

Total Hourly Ownership Percent..(4.75% + 3.68%) = 8.43%

3. OWNERSHIP COSTS

a. Equipment Cost = (Acquisition Price + Capital Improvements)

($2500000 + $0) = $2,500,000

b. Annual Ownership Cost = (Equipment Cost x Annual Ownership Percent)

(1) Annual Ownership Expense:
($2500000 x 8.43%) = $210,750

(2) Monthly Ownership Expense:
($210750 / 7 mo.) = $30,107

(3) Hourly Ownership Expense:
($30107 / 500 hrs.) = $60.21

c. Standby Allowance: *
= [((.50 x Depr. %) + CFD) x Equipment Cost]+Generator Allowance

* NOTE: (If Applicable) -Generator Allowance (see Appendix H para 5)
= ((Generator H.P. / Total Secondary H.P.) x Secondary Fuel Cost)

(1) Annual Standby Expense:
[((.50 x 4.75%) + 3.68%) x $2500000] = $151,375

(2) Monthly Standby Expense: ($151375/7mo.) = $21,625

(3) Hourly Standby Expense: ($21625/500hrs) = $43.25

* (If Applicable) Generator Allowance:
((200 h.p. / 350 h.p.) x $13.86) = + $7.92

Total Hourly Standby Allowance = $51.17

Estimated by:_____. Checked by:_____. Date_____.

4. ESTIMATED HOURLY OPERATING COST:

a. Fuel Cost = (Engine Fuel Factor x H.P. x Fuel Cost/Gal)

(1) Prime Engine Fuel:
(0.036 x 1600 h.p. x $1.10/gal) = $63.36 /hr

(2) Secondary Engine Fuel:
(0.036 x 350 h.p. x $1.10/gal) = $13.86 /hr

b. WLS Cost = (WLS factor x Hourly Fuel Cost)

(1) Prime Engine WLS: (0.33 x $63.36/hr) = $20.91 /hr

(2) Second Engine WLS: (0.33 x $13.86/hr) = $4.57 /hr

c. Repair Cost = (Equip. Cost x Repair Cost Factor x EAF x LAF)/Life (hrs)

(1) EAF = (Econ Index Present Yr / Econ Index Yr of Mfg).

(4255 Pres. Yr / 2922 Yr of Mfg) = 1.456

(2) Life (hrs) = (20yrs x 7mo x 500hrs) = 70,000 hrs

(3) Repair Cost:
($2500000 x 1.20 x 1.456 x 1.04)/70000 hrs = $64.90 /hr

d. Subtotal Operating Cost = (Fuel + WLS + Repairs)
($63.36 + $13.86 + $20.91 + $4.57 + $64.90) = $167.60 /hr

5. Subtotal Hourly Ownership & Operating Cost.
($60.21 /hr + $167.60 /hr) = $227.81 /hr

6. Subtotal Monthly Rate = (Hourly Total x Use Hours/Month)
($60.21 /hr x 500 hrs) = $30,105 /mo
($167.60 /hr x 500 hrs) = $83,800 /mo

Total Cost / Mo
$113,905

7. Additive Item(s) (monthly cost to be estimated)

(1) Dredge Wear (Mud, Sand or Gravel)..... $1,000 /mo
(2) Dry Docking..... $5,000 /mo
(3) Yard Costs..... $2,000 /mo

Subtotal Estimated Additive Items ~~$8,000 /mo~~

8. Total Monthly Rate..... ~~$122,402 /mo~~

Estimated by:_____. Checked by:_____. Date_____.

M A R I N E E Q U I P M E N T C O S T

1. PERTINENT DATA

a. Equipment Description.....> 3000 CY SCOW

b. Model & Series.....> BOTTOM DUMP

c. Present Year.....> 1991

(1) Economic Index.(APP.E).....> 425E

d. Year Manufactured.....> 1981

(1) Economic Index.(APP.E).....> 292E

e. Equipment Cost

(1) Acquisition Price.....> $1,000,000

(2) Capital Improvements.....> $0

f. Prime Engine Horsepower.....> 0 h.p.

g. Secondary Engine(s) Horsepower.

(1) Electrical Generators	-	15 h.p.
(2) Hydraulic System	-	150 h.p.
(3) Cutter Head Drive	-	0 h.p.
(4) Hydraulic Water Jet	-	0 h.p.
Total Secondary H.P.		165 h.p.

h. Fuel Type..... DIESEL

(1) Cost/Gal.(APP.B).....> $1.10 /gal

2. TABLE H-1 DATA:

a. Life (yrs).....> 20 yrs

(1) Annual Use-Months..(para 3)...> 7 mos

(2) Monthly Usage (estimated hrs).> 500 Hours for Owership Costs
500 Hours For Operating Costs

b. Salvage Value Factor.....> 0.05

c. Prime Engine Fuel Factor.....> 0.044

d. Secondary Engine Fuel Factor.....> 0.039

e. WLS Factor.(Water,Lube & Supplies).> 0.33

Estimated by:_____. Checked by:_____. Date_____.

2. TABLE H-1 DATA: (Cont'd)

f. LAF (Labor Adjustment Factor APP B)> 1.04

g. Repair Cost Factor.....> 0.80

h. Annual Ownership Expense Factors...:

(1) Depreciation Factor (%).....> 4.75%

(2) CFC Factor (%).....> 3.68%

Total Hourly Ownership Percent..(4.75% + 3.68%) = 8.43%

3. OWNERSHIP COSTS

a. Equipment Cost = (Acquisition Price + Capital Improvements)

(#1000000 + #0) = #1,000,000

b. Annual Ownership Cost = (Equipment Cost x Annual Ownership Percent)

(1) Annual Ownership Expense:
(#1000000 x 8.43%) = #84,300

(2) Monthly Ownership Expense:
(#84300 / 7 mo.) = #12,043

(3) Hourly Ownership Expense:
(#12043 / 500 hrs.) = #24.09

c. Standby Allowance:
= [((.50 x Depr. %) + CFC) x Equipment Cost]+Generator Allowance *

* NOTE: (If Applicable) -Generator Allowance (see Appendix H para 5)
= ((Generator H.P. / Total Secondary H.P.) x Secondary Fuel Cost

(1) Annual Standby Expense:
[((.50 x 4.75%) + 3.68%) x #10000001 = #60,550

(2) Monthly Standby Expense: (#60550/7mo.) = #8,650

(3) Hourly Standby Expense: (#8650/500hrs) = #17.30

* (If Applicable) Generator Allowance:
((15 h.p. / 165 h.p.) x #7.08) = + #0.64

Total Hourly Standby Allowance = #17.94

Estimated by:_____. Checked by:_____. Date_____.

4. ESTIMATED HOURLY OPERATING COST:

a. Fuel Cost = (Engine Fuel Factor x H.P. x Fuel Cost/Gal)

(1) Prime Engine Fuel:
(0.044 x 0 h.p. x $1.10/gal) = $0.00 /hr

(2) Secondary Engine Fuel:
(0.039 x 165 h.p. x $1.10/gal) = $7.08 /hr

b. WLS Cost = (WLS factor x Hourly Fuel Cost)

(1) Prime Engine WLS: (0.33 x $0.00/hr) = $0.00 /hr

(2) Second Engine WLS: (0.33 x $7.08/hr) = $2.34 /hr

c. Repair Cost = (Equip. Cost x Repair Cost Factor x EAF x LAF)/Life (hrs)

(1) EAF = (Econ Index Present Yr / Econ Index Yr of Mfg).

(4255 Pres. Yr / 2922 Yr of Mfg) = 1.456

(2) Life (hrs) = (20yrs x 7mo x 500hrs) = 70,000 hrs

(3) Repair Cost:
($1000000 x 0.80 x 1.456 x 1.04)/70000 hrs = $17.31 /hr

d. Subtotal Operating Cost = (Fuel + WLS + Repairs)
($0.00 + $7.08 + $0.00 + $2.34 + $17.31) = $26.73 /hr

5. Subtotal Hourly Ownership & Operating Cost.
($24.09 /hr + $26.73 /hr) = $50.82 /hr

6. Subtotal Monthly Rate = (Hourly Total x Use Hours/Month)
($24.09 /hr x 500 hrs) = $12,045 /mo Total Cost / Mo
($26.73 /hr x 500 hrs) = $13,365 /mo $25,41

7. Additive Item(s) (monthly cost to be estimated)

(1) /mo
(2) Dry Docking.....> $1,000 /mo
(3) Yard Costs.....> $1,000 /mo

Subtotal Estimated Additive Items $2,000 /mo

8. Total Monthly Rate..... $27,410 /mo

Estimated by:_____. Checked by:_____. Date_____.

M A R I N E E Q U I P M E N T C O S T

1. PERTINENT DATA

a. Equipment Description.....> TUGBOAT

b. Model & Series.....> V-HULL TWIN SCREW

c. Present Year.....> 1991

(1) Economic Index.(APP.E).....> 4255

d. Year Manufactured.....> 1980

(1) Economic Index.(APP.E).....> 2922

e. Equipment Cost

(1) Acquisition Price.....> $510,000

(2) Capital Improvements.....> $0

f. Prime Engine Horsepower.....> 1,200 h.p.

g. Secondary Engine(s) Horsepower.

(1) Electrical Generators	-	200 h.p.
(2) Hydraulic System	-	100 h.p.
(3) Cutter Head Drive	-	0 h.p.
(4) Hydraulic Water Jet	-	0 h.p.
Total Secondary H.P.		300 h.p.

h. Fuel Type.....> DIESEL

(1) Cost/Gal.(APP.E).....> $1.10 /gal

2. TABLE H-1 DATA:

a. Life (yrs).....> 20 yrs

(1) Annual Use-Months..(para 3)...> 7 mos

(2) Monthly Usage (estimated hrs).> 500 Hours for Ownership Costs
500 Hours For Operating Costs

b. Salvage Value Factor.....> 0.10

c. Prime Engine Fuel Factor.....> 0.044

d. Secondary Engine Fuel Factor.....> 0.039

e. WLS Factor.(Water,Lube & Supplies).> 0.36

Estimated by:_____. Checked by:_____. Date_____.

2. TABLE H-1 DATA: (Cont'd)

f. LAF (Labor Adjustment Factor APP B)> 1.04

g. Repair Cost Factor.....> 0.90

h. Annual Ownership Expense Factors...:

(1) Depreciation Factor (%).....> 4.50%

(2) OFD Factor (%).....> 3.84%

Total Hourly Ownership Percent..(4.50% + 3.84%) = 8.34%

3. OWNERSHIP COSTS

a. Equipment Cost = (Acquisition Price + Capital Improvements)

($500000 - $0) = $500,000

b. Annual Ownership Cost = (Equipment Cost x Annual Ownership Percent)

(1) Annual Ownership Expense:
($500000 x 8.34%) = $41,700

(2) Monthly Ownership Expense:
($41700 / 7 mo.) = $5,957

(3) Hourly Ownership Expense:
($5957 / 500 hrs.) = $11.91

c. Standby Allowance:
= [((.50 x Depr. %) + OFD) x Equipment Cost]+Generator Allowance *

* NOTE: (If Applicable) -Generator Allowance (see Appendix F para B.
= ((Generator H.P. / Total Secondary H.P.) x Secondary Fuel Cost)

(1) Annual Standby Expense:
[((.50 x 4.50%) + 3.84%) x $500000] = $30,450

(2) Monthly Standby Expense: ($30450/7mo.) = $4,350

(3) Hourly Standby Expense: ($4350/500hrs) = $8.70

* (If Applicable) Generator Allowance:
((200 h.p. / 300 h.p.) x $12.87) = + $8.58

Total Hourly Standby Allowance = $17.28

Estimator by: Checked by: Date

4. ESTIMATED HOURLY OPERATING COST:

a. Fuel Cost = (Engine Fuel Factor x H.P. x Fuel Cost/Gal)

(1) Prime Engine Fuel:
(0.044 x 1200 h.p. x $1.10/gal) = $58.08 /hr

(2) Secondary Engine Fuel:
(0.039 x 300 h.p. x $1.10/gal) = $12.87 /hr

b. WLS Cost = (WLS factor x Hourly Fuel Cost)

(1) Prime Engine WLS: (0.36 x $58.08/hr) = $20.91 /hr

(2) Second Engine WLS: (0.36 x $12.87/hr) = $4.63 /hr

c. Repair Cost = (Equip. Cost x Repair Cost Factor x EAF x LAF./Life (hrs)

(1) EAF = (Econ Index Present Yr / Econ Index Yr of Mfg).

(4255 Pres. Yr / 2922 Yr of Mfg) = 1.456

(2) Life (hrs) = (20yrs x 7mo x 500hrs) = 70,000 hrs

(3) Repair Cost:
($500000 x 0.90 x 1.456 x 1.04)/70000 hrs = $9.73 /hr

d. Subtotal Operating Cost = (Fuel + WLS + Repairs)
($58.08 + $12.87 + $20.91 + $4.63 + $9.73) = $106.22 /hr

5. Subtotal Hourly Ownership & Operating Cost.
($11.91 /hr + $106.22 /hr) = $118.13 /hr

6. Subtotal Monthly Rate = (Hourly Total x Use hours/Month)
($11.91 /hr x 500 hrs) = $5,955 /mo Total Cost / Mo
($106.22 /hr x 500 hrs) = $53,110 /mo $59,065

7. Additive Item(s) (monthly cost to be estimated)

(1) /mo
(2) Dry Docking.....> $1,000 /mo
(3) Yard Costs.....> $1,000 /mo

Subtotal Estimated Additive Items $2,000 /mo

8. Total Monthly Rate..... $61,065 /mo

Estimated by:_____. Checked by: . Date

M A R I N E E Q U I P M E N T C O S T

1. PERTINENT DATA

a. Equipment Description.....> WORKBOAT / LAUNCH

b. Model & Series.....> 20' FLAT BOTTOM - TWIN 75

c. Present Year.....> 1991

(1) Economic Index.(APP.E).....> 4255

d. Year Manufactured.....> 1983

(1) Economic Index.(APP.E).....> 2922

e. Equipment Cost

(1) Acquisition Price.....> $20,000

(2) Capital Improvements.....> $0

f. Prime Engine Horsepower.....> 150 h.p.

g. Secondary Engine(s) Horsepower.

(1) Electrical Generators	-	0 h.p.
(2) Hydraulic System	-	0 h.p.
(3) Cutter Head Drive	-	0 h.p.
(4) Hydraulic Water Jet	-	0 h.p.
Total Secondary H.P.		0 h.p.

h. Fuel Type.....> GAS

(1) Cost/Gal.(APP.E).....> $1.10 /gal

2. TABLE H-1 DATA:

a. Life (yrs).....> 10 yrs

(1) Annual Use-Months..(para 3)...> 7 mos

(2) Monthly Usage (estimated hrs).> 500 Hours for Ownership Costs
500 Hours For Operating Costs

b. Salvage Value Factor.....> 0.05

c. Prime Engine Fuel Factor.....> 0.061

d. Secondary Engine Fuel Factor.....> 0.032

e. WLS Factor.(Water,Lube & Supplies).> 0.30

Estimated by:_____. Checked by:_____. Date_____.

2. TABLE H-1 DATA: (Cont'd)

f. LAF (Labor Adjustment Factor AFF B)> 1.04

g. Repair Cost Factor.....> 0.80

h. Annual Ownership Expense Factors...:

(1) Depreciation Factor (%).....> 9.50%

(2) CFC Factor (%).....> 3.84%

Total Hourly Ownership Percent..(9.50% + 3.84%) = 13.34%

3. OWNERSHIP COSTS

a. Equipment Cost = (Acquisition Price + Capital Improvements)

($20000 + $0) = $20,000

b. Annual Ownership Cost = (Equipment Cost x Annual Ownership Percent)

(1) Annual Ownership Expense:
($20000 x 13.34%) = $2,668

(2) Monthly Ownership Expense:
($2668 / 7 mo.) = $381

(3) Hourly Ownership Expense:
($381 / 500 hrs.) = $0.76

c. Standby Allowance:
= [((.50 x Depr. %) + CFC) x Equipment Cost]+Generator Allowance *

* NOTE: (If Applicable) +Generator Allowance (see Appendix F para E.
= ((Generator H.P. / Total Secondary H.P.) x Secondary Fuel Cost

(1) Annual Standby Expense:
[((.50 x 9.50%) + 3.84%) x $20000] = $1,718

(2) Monthly Standby Expense: ($1718/7mo.) = $245

(3) Hourly Standby Expense: ($245/500hrs) = $0.49

* (If Applicable) Generator Allowance:
((0 h.p. / 0 h.p.) x $0.00) = + $0.00

Total Hourly Standby Allowance = $0.49

Estimated by:_____. Checked by:_____. Date_____.

4. ESTIMATED HOURLY OPERATING COST:

a. Fuel Cost = (Engine Fuel Factor x H.P. x Fuel Cost/Gal)

(1) Prime Engine Fuel:
(0.062 x 150 h.p. x $1.10/gal) = $10.23 /hr

(2) Secondary Engine Fuel:
(0.052 x 0 h.p. x $1.10/gal) = $0.00 /hr

b. WLS Cost = (WLS factor x Hourly Fuel Cost)

(1) Prime Engine WLS: (0.30 x $10.23/hr) = $3.07 /hr

(2) Second Engine WLS: (0.30 x $0.00/hr) = $0.00 /hr

c. Repair Cost = (Equip. Cost x Repair Cost Factor x EAF x LAF)/Life (hrs)

(1) EAF = (Econ Index Present Yr / Econ Index Yr of Mfg).

(4255 Pres. Yr / 2922 Yr of Mfg) = 1.456

(2) Life (hrs) = (10yrs x 7mo x 500hrs) = 35,000 hrs

(3) Repair Cost:
($20000 x 0.50 x 1.456 x 1.04)/35000 hrs = $0.69 /hr

d. Subtotal Operating Cost = (Fuel + WLS + Repairs)
($10.23 + $0.00 + $3.07 + $0.00 + $0.69) = $13.99 /hr

5. Subtotal Hourly Ownership & Operating Cost.
($0.76 /hr + $13.99 /hr) = $14.75 /hr

6. Subtotal Monthly Rate = (Hourly Total x Use Hours/Month)
($0.76 /hr x 500 hrs) = $380 /mo Total Cost / Mo
($13.99 /hr x 500 hrs) = $6,995 /mo $7,375

7. Additive Item(s) (monthly cost to be estimated)

(1) /mo
(2) Dry Docking.....> $0 /mo
(3) Yard Costs.....> $100 /mo

Subtotal Estimated Additive Items $100 /mo

8. Total Monthly Rate..... $7,475 /mo

Estimated by:_____. Checked by:_____. Date_____.

Alternative Bay-3 Capping

Area A&B (268,000 cy of capping material)

Equipment:	2-2000 cy split hull scows	$104,000 per month
	2 - tugboats	$60,000 " "
Labor:		$71,000 " "
Total Direct Cost:		$235,000 per month

Material:	Deliver sand to site ($7 per cy)	$1,876,700
	Load sand on scows ($5 per cy)	$1,340,500

Production Rate: 1500 cy per day or 37,500 per month
Duration: 7.2 months
Total Direct Cost (Areas A&B): $4,909,200

Note:
1) Material acquired from a land source, trucked to New Bedford and loaded on scows.
2) Costs based on 8 hour day, 6 days per week.
3) Split hull scows would be pushed sideways across the area by tugboats while slowly spreading the cap material through the partially opened (6-8 degrees) bottom. Based on an average scow load of 1500 cy a production rate of 1 load per day is possible.

Area C (160,000 cy of capping material)

Equipment:	2- 2000 cy split hull scows	$104,000 per month
	Tugboat	$30,000 " "
	Workboat	$3,000 " "
	Labor	$71,000 " "
Total Direct cost		$144,000 per month

Material: Same unit price as Areas A and B. $1,920,000
Production Rate: 1600 cy per day or 40,000 cy per month
Duration: 4 months
Total Direct Cost (Area C) $2,493,000

Note:
1) Operation ongoing 8 hours per day, 6 days per week.
2) Delivery of material and loading of scows controls production rate.

Total Direct Cost (Alternative Bay 3) $7,402,200

Alternative approach to capping area C

Equipment:	1300 cy capacity hopper dredge	$378,000 per month

Production Rate: 8000 cy per day
Duration: 1 month (includes mobilization and demobilization)

Total Direct Cost $378,000

Notes:
1) Hopper dredge operates 24 hours per day, 7 days per week.
2) Capping material is acquired from areas adjacent to the New Bedford entrance channel.

Alternative Bay-3
Capping Areas A&B

SPLIT HULL OPERATION

OPERATING COSTS

PAYROLL	NO.	MONTH SALARY	AMOUNT
PROJECT MGR	1	$4,000	$4,000
SUPERINTENDENT	1	$3,000	$3,000
CAPTAIN	0	$0	$0
CHIEF ENGR.	1	$4,000	$4,000
CIVIL ENGR.	0	$0	$0
OFFICE MGR	1	$2,800	$2,800
OFFICE PERSONNEL	1	$1,500	$1,500
SUBTOTAL....			$15,300
TAXES,INS.,FRINGES.....		39.1%	$5,975
MANAGEMENT PAYROLL.....>			$21,275 per w/mo
OPERATOR	0	$19.05	$0.00
WATCH ENGINEER	0	$18.40	$0.00
DREDGE MATES	0	$16.64	$0.00
TUGMASTER	2	$17.52	$35.04
LAUNCHMEN	1	$14.71	$14.71
MAINTENANCE ENGINEERS	0	$17.77	$0.00
EQUIPMENT OPERATORS	0	$18.03	$0.00
WELDERS	0	$17.51	$0.00
OILERS	0	$15.06	$0.00
DECKHANDS	2	$14.71	$29.42
ELECTRICIAN	0	$16.33	$0.00
GENERAL DUMP FOREMAN	1	$18.00	$18.00
DUMP FOREMAN	0	$0.00	$0.00
BOOKMAN	2	$14.53	$29.06
CREW TOTAL	8 MEN		$126.23 per hour
SHIFTS/DAY	1		
SHIFT LENGTH	8 Hrs		
DAYS/WEEK	6 Days		
Work	48 Hrs/Wk		
PAY 50 HRS /WK @ 4.20W B/WYO			$27,569
TAXES,INS.,FRINGES.....		51.1%	$14,074
QTRS & SUBSISTENCE $40/MAN/DAY/WK/MO			$8,314
CREW PAYROLL.....>			$49,957 per w/mo
+ MANAGEMENT PAYROLL.....>			$21,275 per w/mo
PAYROLL COSTS.....>			$71,231 per w/mo

BOOSTER	150 HP	
RENTAL RATE PER MONTH		$7,500
(NOT USED) FUEL		ERR
WATER, LUBE, SUPPLIES		ERR
TOTAL		ERR

PLANT
See Attached "Marine Equipment Costs

2-TUGBOATS.....	$60,000
2-2000 CY SPLIT HULL BOOKS.....	$104,000
PLANT COSTS.....>	$164,000
+ PAYROLL COSTS.....>	$71,231
MONTHLY OPERATING COSTS=	$235,231

Taxes, Insurance and Fringes on Labor
Based on Decision Number NYR1-1

Social Security	7.65%
Workman's Compensation	10.51%
Federal and State Unemployment Tax	3.70%
State Liability Tax	3.00%
Fringes... $2.71 /HR.- 8%	24.00%
8 paid hol.	2.19%
TAXES,INS.,FRINGES.....CREW...	51.1%
-(BENEFIT DIFFERENTIAL)	12.0%
TAXES,INS.,FRINGES.....MANAGEMENT..	39.1%

Ave. gross crew wage = $31.98 per man hour

Estimated by: R. Simeone 10-4-91 Checked by: _____

MARINE EQUIPMENT COST

1. PERTINENT DATA

a. Equipment Description.....>	2000 CY SCOW
b. Model & Series.....>	SPLIT HULL - BOTTOM DUMP
c. Present Year.....>	1991
(1) Economic Index.(APP.E).....>	4255
d. Year Manufactured.....>	1988
(1) Economic Index.(APP.E).....>	3920
e. Equipment Cost	
(1) Acquisition Price.....>	$3,000,000
(2) Capital Improvements.....>	$0
f. Prime Engine Horsepower.....>	0 h.p.
g. Secondary Engine(s) Horsepower.	
(1) Electrical Generators -	15 h.p.
(2) Hydraulic System -	200 h.p.
(3) Cutter Head Drive -	0 h.p.
(4) Hydraulic Water Jet -	0 h.p.
Total Secondary H.P.	215 h.p.
h. Fuel Type.....>	DIESEL
(1) Cost/Gal.(APP.B).....>	$1.10 /gal

2. TABLE H-1 DATA:

a. Life (yrs).....>	20 yrs
(1) Annual Use-Months..(para 3)....>	7 mos
(2) Monthly Usage (estimated hrs).>	500 Hours for Ownership Costs 200 Hours for Operating Costs
b. Salvage Value Factor.....>	0.05
c. Prime Engine Fuel Factor.....>	0.044
d. Secondary Engine Fuel Factor.....>	0.039
e. WLS Factor.(Water,Lube & Supplies).>	0.33

Estimated by:_____. Checked by:_____. Date_____.

2. TABLE H-1 DATA: (Cont'd)

f. LAF (Labor Adjustment Factor APP B)> 1.04

g. Repair Cost Factor.....> 0.80

h. Annual Ownership Expense Factors...:

(1) Depreciation Factor (%).....> 4.75%

(2) DFC Factor (%).....> 3.65%

Total Hourly Ownership Percent..(4.75% + 3.65%) = 8.40%

3. OWNERSHIP COSTS

a. Equipment Cost = (Acquisition Price + Capital Improvements)

($3000000 + $0) = $3,000,000

b. Annual Ownership Cost = (Equipment Cost x Annual Ownership Percent)

(1) Annual Ownership Expense:
($3000000 x 8.40%) = $252,000

(2) Monthly Ownership Expense:
($252000 / 7 mo.) = $36,129

(3) Hourly Ownership Expense:
($36129 / 500 hrs.) = $72.26

c. Standby Allowance:
= [((.50 x Depr. %) + DFC) x Equipment Cost]+Generator Allowance *

* NOTE: (If Applicable) -Generator Allowance (see Appendix - para 5
= ((Generator H.P. / Total Secondary H.P.) x Secondary Fuel Cost)

(1) Annual Standby Expense:
[((.50 x 4.75%) + 3.65%) x $3000000] = $131,650

(2) Monthly Standby Expense: ($131650/7mo.) = $18,950

(3) Hourly Standby Expense: ($18950/500hrs) = $51.90

* (If Applicable) Generator Allowance:
((15 h.p. / 215 h.p.) x $9.20) = + $0.64

Total Hourly Standby Allowance = $52.54

Estimated by:_____. Checked by:_____. Date_____.

4. ESTIMATED HOURLY OPERATING COST:

a. Fuel Cost = (Engine Fuel Factor x H.P. x Fuel Cost/Gal)

(1) Prime Engine Fuel:
(0.044 x 0 h.p. x $1.10/gal) = $0.00 /hr

(2) Secondary Engine Fuel:
(0.039 x 215 h.p. x $1.10/gal) = $9.22 /hr

b. WLS Cost = (WLS factor x Hourly Fuel Cost)

(1) Prime Engine WLS: (0.00 x $0.00/hr) = $0.00 /hr

(2) Second Engine WLS: (0.33 x $9.22/hr) = $3.04 /hr

c. Repair Cost = (Equip. Cost x Repair Cost Factor x EAF x LAF / Life (hrs)

(1) EAF = (Econ Index Present Yr / Econ Index Yr of Mfg).

(4055 Pres. Yr / 3920 Yr of Mfg) = 1.035

(2) Life (hrs) = (20yrs x 7mo x 500hrs) = 70,000 hrs

(3) Repair Cost:
($3000000 x 0.80 x 1.035 x 1.04)/70000 hrs = $38.69 /hr

d. Subtotal Operating Cost = (Fuel + WLS + Repairs)
($0.00 + $9.22 + $0.00 + $3.04 + $38.69) = $50.95 /hr

5. Subtotal Hourly Ownership & Operating Cost.
($72.26 /hr + $50.95 /hr) = $123.21 /hr

6. Subtotal Monthly Rate = (Hourly Total x Use hours/Month)
($72.26 /hr x 500 hrs) = $36,130 /mo Total Cost - Yr
($50.95 /hr x 200 hrs) = $10,190 /mo $46,320

7. Additive Item(s) (monthly cost to be estimated)

(1) /mo
(2) Dry Docking.....) $3,000 /mo
(3) Yard Costs.....) $3,000 /mo

Subtotal Estimated Additive Items $6,000 /mo

8. Total Monthly Rate..... $52,320 /mo

Estimated by:_____. Checked by:_____. Date_____.

Alternative Bay-3
Capping Area C - Hopper Dredge
/PPOMR132L9T2B5

Pg 25

27(***

D. MONTHLY PLANT OWNERSHIP & LABOR COST SUMMARY

BID ITEM: #0

EXCAVATION

Filename: HOP-EST.WK1

PLANT OWNERSHIP & OPERATING

1 Equipment 1300 CYD HOPPER DREDGE

2 Plant Ownership & Operating Expense			REMARKS
A. Hopper Dredge....>	$222,109	/mo	See "Dredge Rate" in Backup. Pg 26-29
Propulsion Tug...>	self prop.	/mo	
B. Survey Vessel....>	$0	/mo	
C. Booster.....>	$0	/mo	
D. Crane Barge.....>	$0	/mo	
E. Tender Tug.....>	$0	/mo	
F. Other Marine.....>	$0	/mo	
G. Shore Equip.....>	$0	/mo	
3 INTEREST ON INVESTMENT on Plant.....>	$41,095	/mo	
4 Labor Expense.....>	$110,542	/mo	~~See "Labor Rates" Attached~~
5 Travel Expense.....>	$4,346	/mo	(30.42 dys/mo / 28 dys x $400 rt x 10 ea)

6 TOTAL MONTHLY COST $378,095 /mo

Estimated By: > > Chked By:_____

Estimated by: R. Simeone

~~10-4-71~~

HOPPER DREDGE OWNERSHIP AND CFC COST DATA Filename: HOP-EST.WK1

ACQUISITION COST (A):	$10,000,000
CAPITAL IMPROVEMENTS (I) @ 10% OF (A):	$1,000,000
(A + I)	$11,000,000
CFC (R):	8.375%
SALVAGE VALUE FACTOR (S):	10%
ECONOMIC LIFE (N):	20 yrs
YEAR COMMISSIONED :	1980
DATE AT MID PT OF WORK:	Oct-93
AGE IN YEARS (T):	13.3 yrs
USE MONTHS PER YEAR (UMPY):	9 months
MARINE INSURANCE (MI):	1.50%
TAXES (TA):	1.00%
LAYUP (LU):	$41,000 per layup month
YARD COST (Y):	$2,200 per month

CALCULATIONS

1. OWNERSHIP

DEPRECIATION = (A+I)*[1-S]/N	= ($11000000) x [1 - 10%] / 20	=	$ 495,000	/YR
MARINE INSURANCE = MI(A+I)	= 1.50% x ($11000000)	=	$ 165,000	/YR
TAXES = TA(A+I)	= 1.00% x ($11000000)	=	$ 110,000	/YR
LAYUP = (LU)(12-1-UMPY)	= ($41000) x (12-1-9)	=	$ 82,000	/YR
YARD = 12(Y)	= 12 x ($2200)	=	$ 26,400	/YR
TOTAL YEARLY OWNERSHIP:			$ 878,400	/YR
MONTHLY OWNERSHIP: YRLY OWNERSHIP / UMPY = $878400 / 9 USE MONTHS		=	$ 97,600	/MO
DAILY OWNERSHIP: MTHLY OWNERSHIP / DYS/MO = $97600 / 30.42 DYS/MO		=	$ 3,209	/DAY

2. COST OF FACILITIES CAPITAL (INTEREST ON INVESTMENT)

YEARLY CFC = (A+I)R[1-(T(1-S)/N)] = = ($11000000) x (8.375%) x [1-(13.3(1-10%)/20)]		=	$ 369,882	/YR
MONTHLY CFC = (YEARLY CFC/UMPY) = ($369882/9.0)		=	$ 41,098	/MO
DAILY CFC = (MONTHLY CFC/(DAYS/MONTH)) = ($41098/30.42)		=	$ 1,351	/DAY

Estimated By: > > Chked By:_____

1. FUEL

a. At Dredge Site — FUEL USE CONSUMPTION SUMMARY

DESCRIPTION	DREDGING	TURNING, SAILING & DISPOSAL	PUMPOUT	TOTAL NON-EFFECTIVE TIME	TOTALS	JET @ 100% DREDGE TIME
CYCLE TIME IN MIN.	59	43	0	34	136	59
% OF TOTAL CYCLE TIME	43.4%	31.6%	0.0%	25.0%	100.0%	43.4%
FUEL CONSUMPTION IN GAL/HR						
Propulsion	17.7	22.6	0.0		40.3	
Pumps (1 dracheads used)	11.3	0.0	0.0		11.3	0.0
Auxillary & Misc.	2.4	1.4	0.0	1.1	4.9	
Subtotals:	31.4	24.0	0.0	1.1	56.5	0.0

AVERAGE HOURLY FUEL CONSUMPTION : 56.5 GAL/HR

HISTORICAL FUEL CONSUMPTION DATA NOT AVAILABLE OR NOT USED.....

AVERAGE HOURLY FUEL COST @ $1.00 /GAL = $ 56.50 /HR

b. During Mob & Demob Operation. FUEL USE CONSUMPTION SUMMARY

DESCRIPTION	MOB & DEMOB
Propulsion = (Propulsion hp x Propulsion factor during sailing) =	71.4 GAL/HR
Aux. & Misc. = (Aux. & Misc. hp x Aux. & Misc. factor during sailing) =	4.5 "
TOTAL HOURLY FUEL CONSUMPTION DURING MOB & DEMOB:	75.9 GAL/HR
AVERAGE HOURLY FUEL COST @ $1.00 /GAL =	$ 75.90 /HR

2. LUBRICANTS

TOTAL INSTALLED POWER = 3,005 HP

HOURLY COST FOR LUBRICANTS, FROM TABLE B: $4.40 /HR
AVERAGE HOURLY COST FOR LUBRICANTS, x 75.0% (1) = $ 3.30 /HR

3. REPAIRS AND MAINTENANCE

TOTAL INSTALLED POWER = 3,005 HP

HOURLY REPAIRS & OVERHAULS $109.00
AVG. HOURLY COST FOR REPAIRS & MAINT. x 75.0% (1) = $ 81.75 /HR

(1) ADJUSTMENT FOR NET ESTIMATED EFFECTIVE DAYS/MONTH = 22.82 DAYS / 30.42 DAYS/MO.

Estimated By:)) Chked By:_____

OPERATING COSTS CONT'D

Filename: HOP-EST.WK1

4. PUMP AND PIPE WEAR AND REPAIRS

DESCRIPTION		TOTAL WEAR AND REPAIRS COSTS		
		MUD	SAND	GRAVEL
PUMP SIZE: 20''				
QUANTITY DREDGED (CY)		0	900,000	0
% PUMPOUT		0%	0%	0%
PUMPS:				
Dredge Pumps		$0	$33,300	$0
Pumpout Pumps		$0	$0	$0
SUBTOTALS: PUMPS -		$0	$33,300	$0
TOTAL PUMP WEAR.....				$33,300
DISCHARGE PIPES:				
Pumpout Line Length	LF	0	0	0
Pipe Wear Cost		$0	$0	$0
SUBTOTALS: DISCHARGE PIPES -		$0	$0	$0
TOTAL PIPE WEAR.....				$0

TOTAL COST FOR PUMP AND PIPE WEAR AND REPAIRS: $ 33,300 TOTAL

AVERAGE COST PER CY EXCAVATED: $ 0.04 /CY

TOTAL COST/HR = TOTAL WEAR COST/(TOTAL EFFECTIVE+NON-EFFECTIVE HRS) =
= $33300 / 2614 HRS = 12.74 /HR

5. PROVISIONS & SUPPLIES

ACTUAL CREW = 10 EA
GOVERNMENT PERSONNEL ON DREDGE = 3 EA

TOTAL PROVISIONS @ ($30.00/ MAN-DAY x 13 ea) / 24 HRS/DAY = $ 16.25 /HR

SUMMARY

TOTAL HOURLY OPERATING COST	$	170.54 /HR
TOTAL DAILY OPERATING COST = ($170.54 x 24 HRS/DAY) =	$	$4,093 /DAY
TOTAL HOURLY FUEL COST DURING MOB & DEMOB.	$	75.9 /HR
TOTAL DAILY FUEL COST DURING MOB & DEMOB = ($75.90 x 24 HRS/DAY) =	$	$1,822 /DAY

Estimated By: > > Chked By:_____

27CGE

	RATES	RATES
1. OWNERSHIP:		
DEPRECIATION	$1,808 /DY	$1,808 /DY
MARINE INSURANCE	$603 /DY	$603 /DY
TAXES	$402 /DY	$402 /DY
LAYUP	$300 /DY	$300 /DY
YARD	$96 /DY	$96 /DY
a. SUBTOTAL, DAILY OWNERSHIP	$3,209 /DY	$3,209 /DY
b. SUBTOTAL, MONTHLY OWNERSHIP	$97,600 /MO	$97,600 /MO
2. OPERATING COSTS:		
FUEL	$1,356 /DY	$1,822 /DY
LUBRICANTS	$79 /DY	$79 /DY
REPAIRS AND MAINTENANCE	$1,962 /DY	
PUMP AND PIPE WEAR & REPAIRS	$306 /DY	
PROVISIONS AND SUPPLIES	$390 /DY	$390 /DY
a. SUBTOTAL, DAILY OPERATING COSTS:	$4,093 /DY	$2,291 /DY
b. SUBTOTAL, MONTHLY OPERATING COSTS:	$124,509 /MO	$69,692 /MO
3. TOTAL OWNERSHIP & OPERATING COSTS:		
a. DAILY OWNERSHIP & OPERATING COSTS	$7,302 /DY	$5,500 /DY
b. MONTHLY OWNERSHIP & OPERATING COSTS	$222,109 /MO	$167,292 /MO
4. COST OF FACILITIES CAPITAL or (IOI):		
a. DAILY CFC COSTS	$1,351 /DY	$1,351 /DY
b. MONTHLY CFC COSTS	$41,098 /MO	$41,098 /MO

USER VARIABLE DATA SUMMARY TABLE	VARIABLE USED	DEFAULT # FROM DATABASE
USE MONTHS PER YEAR (UMPY)	DEFAULT —>	9
CAPITAL IMPROVEMENT %	DEFAULT —>	10%
PUMP LOAD FACTOR DURING DREDGING.	DEFAULT —>	50%
REPAIR & MAINTENANCE COST ADJUSTMENT	DEFAULT —>	1.00

Estimated By: > > Chked By:_____

27C**********

PRODUCTION WORK SHEET

BID ITEM: #0 B.

CYCLE TIME

****

Filename: HOP-EST.WK1

CYCLE TIME

1. Dredge Used:

A. Name of Dredge. 1300 CYD HOPPER DREDGE

B. Effective Dredge Hopper Cap. 780 cy

2. Time Per Average Load Cycle:

		REMARKS
A. Dredging	59 min	(780 cy / 800 cy/hr) x 60 min/hr.
B. Turning	15 min	5 turns at 3 minutes per turn.
C. To Disposal Or Mooring	7 min	(1.0 miles / 8.1 mph) x 60 min/hr.
D. Dumping Or Connect To Pipeline	15 min	
E. Pumpout Through Pipeline	0 min	(cy / cy/hr) x 60 min/hr.
F. From Disposal Or Mooring	6 min	(1 miles / 11 mph) x 60 min/hr.

3. Subtotal 102 min/load

****

PRODUCTION WORK SHEET

BID ITEM: 80 C.

DREDGING TIME

Filename: HOF-EST.WK1

DREDGING TIME				REMARKS
1 Available Minutes Per Dredging Day		1,440	min/day	(60 Min/Hr x 24 Hrs/Day)
2 Percent Effective Time	x	75%		
3 Daily Effective Time	=	1,080	min/wday	
4 Total Cycle Time	/	102	min/load	
5 Number Of Loads Per Day	=	10.59	loads/wday	
6 Cubic Yards Per Load	x	780	cy/load	
7 Operating Work Days Per Month	x	30.42	wdays/mo	
8 Gross Cubic Yards Per Month	=	251,275	cy/mo	
9 Gross Cubic Yards		900,000	cy (gross)	
10 Gross Cubic Yards Per Month	/	251,275	cy/mo	
11 Dredge Time	=	3.58	months	
12 Clean Up	+	0.00	months	0% Additional Dredging
13 Total Dredge Time		3.58	months	

Effective + Non-Effective = (3.58 months x 24 hrs/day x 30.42 days/month)

= 2,614 hrs

Estimated By: > > Chked By:_____

Alternative Bay-4 Capping with Dredging and Shoreline Disposal

Areas A & B (dredging)

Total Direct Cost (see alternative 2)	$1,204,200

Modifications to CDF 1

*Additional costs are associated with raising the dikes by 2.5 feet to accomodate the additional 67,000 cubic yards of dredged material. The unit prices for the dike material were taken from Report 11 of the Engineering Feasibility Study.

In Water Dike: 11,700 cy @ $19 per cy =	$222,300
Land Dike: 3,000 cy @ $6.35 per cy =	$19,050
Total Dike Modifications	$241,350

Area C (capping)

Total Direct Cost (see alternative 3)	$2,212,000
Total Direct Cost (Alternative Bay 4)	**$3,657,550**