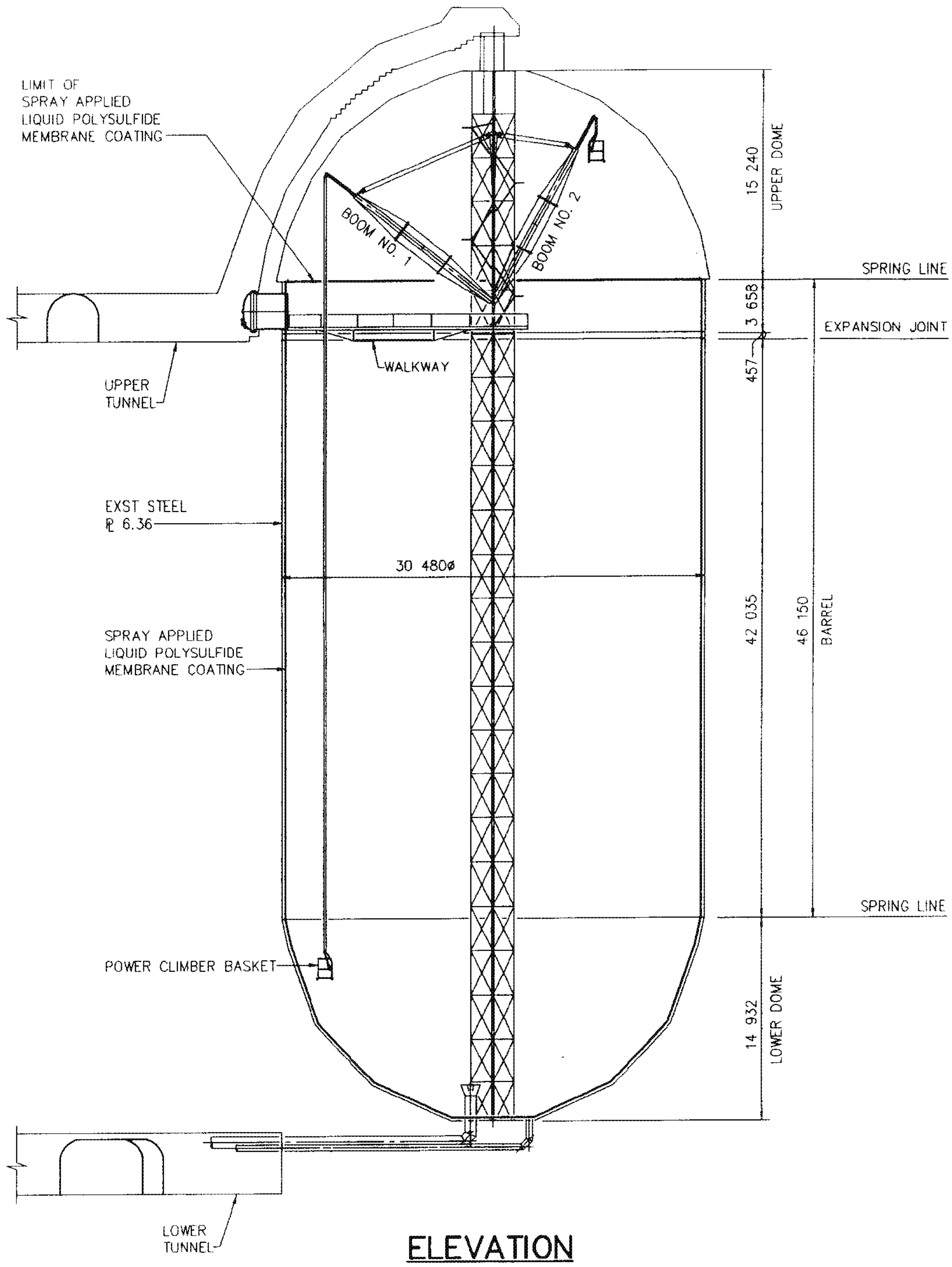
TANK REPAIR CONCEPT:
REPAIR AND RECOAT EXISTING TANK



ELEVATION
SCALE: 1:250

GRAPHIC SCALES
0 5 10 15 20 25 M
1:250

ENTERPRISE ENGINEERING, INC
YARMOUTH, ME ANCHORAGE, AK

TANK 19, REDHILL FISC PEARL, HAWAII

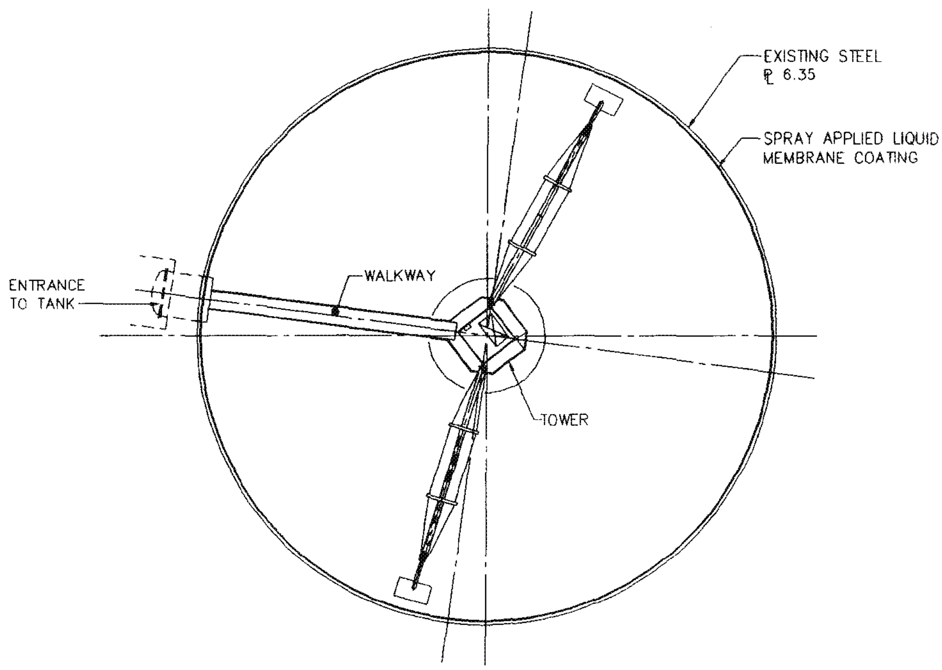
CONCEPT 3:
REHABILITATE TANK

PROJ. NO.	DWG. NO.	REV.
98-2325		0

DRN.	CHD.	DATE	SHT.
GQV	SJD	5/21/98	SK-7

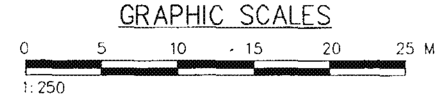
DATE PLOTTED: 9 MAY 98 CAD FILE NO: 2325sk7

RDHLCC0027589
BWS031129



PLAN
SCALE: 1:250

GRAPHIC SCALES



ENTERPRISE
ENGINEERING, INC
YARMOUTH, ME   ANCHORAGE, AK

TANK 19, REDHILL   FISC PEARL, HAWAII

CONCEPT 3:
REHABILITATE TANK

PROJ. NO.	DWG. NO.	REV.
98-2325		0

DRN.	CHD.	DATE	SHT.
GQV	SJD	5/21/98	SK-8

DATE PLOTTED: 9 MAY 98   CAD FILE NO: 2325sk8

REPAIR AND RECOAT EXISTING TANK
COST ESTIMATE - BASE BID

SYSTEM REPORT
SUBMITTAL: FACD
SOFTWARE VERSION: SUCCESS 2.21
REPORT WRITER VERSION: R&R 6.0

CONSTRUCTION CONTRACT: PRL 98-9
DATABASE USED: EEI
PRINTING DATE: 05/27/1998
Page No. 1
ESTIMATE NAMET19-repe

PROJECT: Red Hill Tank 19 - Repair Existing
LOCATION: FISC Pearl Harbor, HI
ESTIMATOR: EEI
PROJECT SIZE: 1 PRL 98
CONSTRUCTION FUNDS AVAILABLE:

CAT CODE: N/A
UIC:
PROJECT #: PRL 98-9
DATE OF ESTIMATE: 5/26/98
BID DATE: 4/99

WBS CODE	DESCRIPTION	COST/WBS BASED ON 1 PRL 98	SYSTEM UNITS/ U/M	COST/WBS UNIT	TOTAL MARKED UP COSTS MATL	LABOR	EQUIP	TOTAL
	TOTAL ESTIMATED CONTRACT (ROUNDED)							**4,610,000**
			*****PROJECT SUBTOTALS****		1,237,583	2,644,768	727,922	4,610,273
	DISTRIBUTED COSTS *This level is distributed*	**423740.00/PRL**	**1 LS**		**4,700**	**343,480**	**75,560**	**423,740**
0001	**-FIELD OVERHEAD** *This level is distributed*	**423740.00/PRL**	**1 LS**		**4,700**	**343,480**	**75,560**	**423,740**
	BASE BID	**4610273.48/PRL**	**1 LS**		**1,237,583**	**2,644,768**	**727,922**	**4,610,273**
10	**-Set-up, Prep and Demolition**	**979994.94/PRL**	**1 LS**		**360,664**	**494,774**	**124,557**	**979,995**
1010	MAINTENANCE	925041.25/PRL	1 LS		360,662	439,824	124,555	925,041
1011	REPAIR	54953.71/PRL	1 LS		2	54,950	2	54,954
11	**-Basic Tank Repairs & Appurtanen**	**545795.15/PRL**	**1 LS**		**104,395**	**435,658**	**5,742**	**545,795**
1110	MAINTENANCE	278080.09/PRL	1 LS		13,674	264,406	0	278,080
1111	REPAIR	227274.46/PRL	1 LS		81,061	140,471	5,742	227,274
1112	MINOR CONSTRUCTION	40440.59/PRL	1 LS		9,659	30,781	0	40,441
12	**-Repair Exist.Tank - Lower Dome**	**386338.27/PRL**	**1 LS**		**54,400**	**331,939**	**0**	**386,338**
1210	MAINTENANCE	386338.27/PRL	1 LS		54,400	331,939	0	386,338
13	**-Repair Exist.Tank - Barrel**	**859323.34/PRL**	**1 LS**		**145,944**	**713,380**	**0**	**859,323**
1310	MAINTENANCE	859323.34/PRL	1 LS		145,944	713,380	0	859,323
14	**-Tell-tale System**	**232628.05/PRL**	**1 LS**		**35,692**	**188,340**	**8,596**	**232,628**
1411	REPAIR	232628.05/PRL	1 LS		35,692	188,340	8,596	232,628
15	**-Upper Dome Repairs**	**109281.82/PRL**	**1 LS**		**9,755**	**72,849**	**26,677**	**109,282**
1510	MAINTENANCE	109281.82/PRL	1 LS		9,755	72,849	26,677	109,282
16	**-Existing Tank Investigation**	**471564.60/PRL**	**1 LS**		**23,929**	**288,106**	**159,529**	**471,565**
1610	MAINTENANCE	471564.60/PRL	1 LS		23,929	288,106	159,529	471,565
17	**-Recoat Exist.Tank - Lower Dome**	**193561.59/PRL**	**1 LS**		**105,409**	**0**	**88,153**	**193,562**
1710	MAINTENANCE	193561.59/PRL	1 LS		105,409	0	88,153	193,562
18	**-Recoat Exist.Tank - Barrel**	**605633.25/PRL**	**1 LS**		**309,549**	**0**	**296,085**	**605,633**
1810	MAINTENANCE	605633.25/PRL	1 LS		309,549	0	296,085	605,633
19	**-Tank Piping - Lining**	**226152.50/PRL**	**1 LS**		**87,846**	**119,722**	**18,584**	**226,153**
1910	MAINTENANCE	226152.50/PRL	1 LS		87,846	119,722	18,584	226,153

SUMMARY REPORT
SUBMITTAL: FACD
SOFTWARE VERSION: SUCCESS 2.21
REPORT WRITER VERSION: R&R 6.0

CONSTRUCTION CONTRACT: PRL 98-9
DATABASE USED: EEI
PRINTING DATE: 05/27/1998
Page No. 1
ESTIMATE NAMET19-repe

PROJECT: Red Hill Tank 19 - Repair Existing
LOCATION:FISC Pearl Harbor, HI
ESTIMATOR:EEI
PROJECT SIZE: 1 PRL 98
CONSTRUCTION FUNDS AVAILABLE:

CAT CODE: N/A
UIC:
PROJECT #: PRL 98-9
DATE OF ESTIMATE: 5/26/98
BID DATE: 4/99

WBS CODE	DESCRIPTION	COST/WBS BASED ON 1 PRL 98	SYSTEM UNITS/ U/M	COST/WBS UNIT	TOTAL MARKED UP COSTS MATL	LABOR	EQUIP	TOTAL
	TOTAL ESTIMATED CONTRACT (ROUNDED)							**4,610,000**
				*****PROJECT SUBTOTALS****	1,237,583	2,644,768	727,922	4,610,273
	DISTRIBUTED COSTS	**423740.00/PRL**	**1 LS**		**4,700**	**343,480**	**75,560**	**423,740**
	This level is distributed							
0001	---FIELD OVERHEAD	423740.00/PRL	1 LS		4,700	343,480	75,560	423,740
	This level is distributed							
	BASE BID	**4610273.48/PRL**	**1 LS**		**1,237,583**	**2,644,768**	**727,922**	**4,610,273**
10	---Set-up, Prep and Demolition	979994.94/PRL	1 LS		360,664	494,774	124,557	979,995
11	---Basic Tank Repairs & Appurt	545795.15/PRL	1 LS		104,395	435,658	5,742	545,795
12	---Repair Exist.Tank - Lower D	386338.27/PRL	1 LS		54,400	331,939	0	386,338
13	---Repair Exist.Tank - Barrel	859323.34/PRL	1 LS		145,944	713,380	0	859,323
14	---Tell-tale System	232628.05/PRL	1 LS		35,692	188,340	8,596	232,628
15	---Upper Dome Repairs	109281.82/PRL	1 LS		9,755	72,849	26,677	109,282
16	---Existing Tank Investigation	471564.60/PRL	1 LS		23,929	288,106	159,529	471,565
17	---Recoat Exist.Tank - Lower D	193561.59/PRL	1 LS		105,409	0	88,153	193,562
18	---Recoat Exist.Tank - Barrel	605633.25/PRL	1 LS		309,549	0	296,085	605,633
19	---Tank Piping - Lining	226152.50/PRL	1 LS		87,846	119,722	18,584	226,153

CONTRACTOR MARKUP REPORT
SUBMITTAL: FACD
SOFTWARE VERSION: SUCCESS 2.1
REPORT WRITER VERSION: R&R 6.0

CONSTRUCTION CONTRACT: PRL 98-9
DATABASE USED :EEI
PRINTING DATE :05/27/98
PAGE NUMBER :1
ESTIMATE NAME : T19-repexis

PROJECT: Red Hill Tank 19 - Repair Existing
LOCATION: FISC Pearl Harbor, HI
ESTIMATOR: EEI
PROJECT SIZE: 1.00 PRL 98-9
AUTHORIZED CONSTRUCTION FUNDS:

CAT CODE:N/A
UIC:
PROJECT #:
DATE OF ESTIMATE:5/26/98
BID DATE: 4/99

CONTRACTOR	DESCRIPTION	MATERIAL	LABOR	EQUIPMENT
P	**Prime Contractor**			
	WORKER'S COMPENSATION/UNEMPL/SOC. SEC TAXES	0.00	45.00	0.00
	Hawaii cost adjustment compared to AK	0.00	31.00	0.00
	PRIME OVERHEAD	10.00	10.00	10.00
	PRIME PROFIT	6.00	6.00	6.00
	PRIME HOME OFFICE	3.00	3.00	3.00
	BOND	2.00	2.00	2.00
	ESCALATION	1.02	1.02	1.02
	ESTIMATING CONTINGENCY	5.00	5.00	5.00
	HI GET	4.17	4.17	4.17
	SALES TAX	0.50	0.00	0.50
	COMPOSITE MARKUPS FOR P			
	MATERIAL COMPOSITE MARKUP	**1.360**		
	LABOR COMPOSITE MARKUP	**2.571**		
	EQUIPMENT COMPOSITE MARKUP	**1.360**		
S	**Subcontractors**			
	SUBCONTRACTOR OVERHEAD	10.00	10.00	10.00
	SUBCONTRACTOR PROFIT	6.00	6.00	6.00
	SUBCONTRACTOR HOME OFFICE	3.00	3.00	3.00
	COMPOSITE MARKUPS FOR S			
	MATERIAL COMPOSITE MARKUP	**1.201**		
	LABOR COMPOSITE MARKUP	**1.201**		
	EQUIPMENT COMPOSITE MARKUP	**1.201**		

PROJECT: Red Hill Tank 19 - Repair Existing
LOCATION: FISC Pearl Harbor, HI
ESTIMATOR: EEI
PROJECT SIZE: 1 PRL 98
AUTHORIZED CONSTRUCTION FUNDS:

CAT CODE: N/A
UIC:
PROJECT #: PRL 98-9
DATE OF ESTIMATE: 5/26/98
BID DATE: 4/99

DETAIL REPORT
UNBURDENED LINE ITEMS
FACD
SOFTWARE VERSION: SUCCESS 3.0
REPORT WRITER VERSION: R&R 6.0

CONSTRUCTION CONTRACTPRL 98-9

DATABASE USED: EEI
PRINTING DATE:05/27/1998

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
00							
0001							
	0001 FIELD OVERHEAD *This system is distributed*						
010000002		12.00	mos		5940		5940
	Project Superintendent			0	71,280	0	71,280
010000002		12.00	mos		5000		5000
	Project Quality Control			0	60,000	0	60,000
010000002		10.00	mos		4800		4800
	Safety			0	48,000	0	48,000
010000002		10.00	mos		4800		4800
	Firewatch			0	48,000	0	48,000
010000002		7.00	mos		4800		4800
	Equipment Operator (fork truck)			0	33,600	0	33,600
010000002		10.00	mos		5300		5300
	Boom Operator			0	53,000	0	53,000
010000001		10.00	mos			720	720
	Pick-Up Truck #1			0	0	7,200	7,200
010000001		10.00	mos			720	720
	Pick-Up Truck #2			0	0	7,200	7,200
010000001		10.00	mos			2530	2530
	Skid Steer/fork lift #1			0	0	25,300	25,300
010000001		6.00	mos			2530	2530
	Fork Lift #2			0	0	15,180	15,180
010000001		6.00	mos			600	600
	Welding Equipment #1			0	0	3,600	3,600
010000001		6.00	mos			600	600
	Welding Equipment #2			0	0	3,600	3,600
010000003		10.00	mos			181	181
	Contractor Office			0	0	1,810	1,810
010000003		10.00	mos			90	90
	Tool & Storage Shed			0	0	900	900
010000003		10.00	mos			80	80
	Temporary Toilets			0	0	800	800
010000003		10.00	mos			750	750
	Small Tools			0	0	7,500	7,500
010000003		1.00	LS		1200		1200
	Construction Schedule			0	1,200	0	1,200

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
	0001 FIELD OVERHEAD						
	This system is distributed						
010000003		10.00	mos		240		240
	Progress Sched			0	2,400	0	2,400
010000004		10.00	mos	50			50
	Photographs			500	0	0	500
010000004		3.00	wk		1500		1500
	Submittals			0	4,500	0	4,500
010000004		3.00	wk	400	1500		1900
	As-Built Drawings			1,200	4,500	0	5,700
010000006		10.00	mos			247	247
	Communications: Telephone,Radios			0	0	2,470	2,470
010000014		10.00	mos		300		300
	General Clean-up			0	3,000	0	3,000
010000014		1.00	LS	3000	7000		10000
	Mobilization			3,000	7,000	0	10,000
010000014		1.00	LS		7000		7000
	Demobilization			0	7,000	0	7,000
TOTAL 0001 FIELD OVERHEAD		**1.00**	**LS**	**4,700**	**343,480**	**75,560**	**423,740**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
10							
1010							
101010							
	101010001 General						
	Subcontractor: S	1.00	ls	6000	9600	4500	20100
	Temp. monorail in tank (s12 x 35 monorail + 2 hoists)			6,000	9,600	4,500	20,100
		20.00	mos			1025	1025
	Temp. swing staging inside tank (rented air powered, to 300' high, 2 stages)			0	0	20,500	20,500
	Subcontractor: S	2.00	ea		500		500
	Certify Booms			0	1,000	0	1,000
	Subcontractor: S	2.00	ea		500		500
	Certify Swing Staging			0	1,000	0	1,000
	Subcontractor: S	1.00	ls	13800	7393		21193
	Temp power to Const Trailers			13,800	7,393	0	21,193
	Subcontractor: S	1.00	ls	10357	6071		16428
	Elec - Upper Tunnel - Weld, elec, lights, small tools			10,357	6,071	0	16,428
	Subcontractor: S	1.00	ls	14964	4321		19285
	Elec - Lower Tunnel - Weld, elec, lights, small tools			14,964	4,321	0	19,285
		2.00	md		240	50	290
	Remove Exist. Aboveground Air Supply Fan at top of tank			0	480	100	580
		2.00	md		240	50	290
	Remove ductwork, Lower Tunnel			0	480	100	580
		40.00	md		240		240
	Remove Hoist Sys. / swing staging (4per. @ 30/hr x 8hr/day x 10 day)			0	9,600	0	9,600
		8.00	md		240		240
	Remove Lighting in Tank (2per. @ 30/hr x 8hr/day x 4 day)			0	1,920	0	1,920
		20.00	md		240		240
	Water Wash Shell & Tower (4per. @ 30/hr x 8hr/day x 5 day)			0	4,800	0	4,800
	Subcontractor: S	10.00	day		750		750
	Marine Chemist - Evaluation			0	7,500	0	7,500
	Subcontractor: S	3.00	day		750		750
	Marine Chemist - Safety Pan			0	2,250	0	2,250
	Subtotal Direct Costs			45,121	56,415	25,200	126,736
	Subcontractor Markups			9,068	7,865	904	17,838
	Distributions			281	32,224	4,267	36,772
	Prime Contractor P Markups			19,627	151,615	10,738	181,980
	TOTAL 101010001 General 1.00 LS			**74,098**	**248,119**	**41,110**	**363,326**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
101010							
	101010001 General						
SUBTOTAL 101010 General				45,121	56,415	25,200	126,736
MARKUP				*1.642*	*4.398*	*1.631*	*2.867*
TOTAL 101010 General				**74,098**	**248,119**	**41,110**	**363,326**
101011							
	101011001 Ventilation System						
	Subcontractor: S	1.00	ea	14000	1000		15000
Supply fan with filters, 19000 l/s, 100 hp motor (75 kw motor)				14,000	1,000	0	15,000
	Subcontractor: S	1.00	ea	16000	1500		17500
Exhaust fan with filters, 19000 l/s, 100 hp motor (75 kw motor)				16,000	1,500	0	17,500
	Subcontractor: S	50.00	m	43	62		105
Ductwork, 800 mm dia				2,150	3,100	0	5,250
	Subcontractor: S	200.00	m	13	16		29
Flex duct, 300 mm dia				2,600	3,200	0	5,800
	Subcontractor: S	1.00	ea		1004	44118	45122
Elec - Gen for Supply Fan				0	1,004	44,118	45,122
	Subcontractor: S	1.00	ea		11250		11250
Elec - Gen Demob				0	11,250	0	11,250
Subtotal Direct Costs				34,750	21,054	44,118	99,922
Subcontractor Markups				6,984	4,231	8,867	20,082
Distributions				217	12,676	8,661	21,554
Prime Contractor P Markups				15,116	59,639	21,795	96,550
TOTAL 101011001 Ventilation System		**1.00**	**LS**	**57,067**	**97,600**	**83,441**	**238,108**
	101011002 Baghouse Dust Collection						
	Subcontractor: S	1.00	ea	15000	1100	0.1	16100.1
Dust collector (bag house) with filters & cleaning system				15,000	1,100	0	16,100
	Subcontractor: S	1.00	ea	9000	950		9950
Exhaust Fan, in line centrifugal 9500 L/s, 20 hp				9,000	950	0	9,950
	Subcontractor: S	15.00	m	50	70		120
Ductwork 900 mm dia				750	1,050	0	1,800
Subtotal Direct Costs				24,750	3,100	0	27,850
Subcontractor Markups				4,974	623	0	5,597
Distributions				154	1,866	0	2,021
Prime Contractor P Markups				10,766	8,781	0	19,547
TOTAL 101011002 Baghouse Dust Collection		**1.00**	**LS**	**40,645**	**14,371**	**0**	**55,015**
SUBTOTAL 101011 Ventilation				59,500	24,154	44,118	127,772
MARKUP				*1.642*	*4.636*	*1.891*	*2.294*
TOTAL 101011 Ventilation				**97,711**	**111,971**	**83,442**	**293,124**

WBS CODE DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
101012						
101012001 Dehumidification						
Subcontractor: S	2.00	ea	7000	1500	1	8501
Dehumid. - Air Handling Unit, 4750 L/S, 10 HP motor, w/reheat			14,000	3,000	2	17,002
Subcontractor: S	2.00	ea	50000	6600		56600
Dehumid. - Air Cooled condensing unit, 270 KW capacity			100,000	13,200	0	113,200
Subcontractor: S	1.00	ea	1000	1000		2000
Dehumid. - Refrigerant piping & accessories			1,000	1,000	0	2,000
Subtotal Direct Costs			115,000	17,200	2	132,202
Subcontractor Markups			23,113	3,457	0	26,570
Distributions			717	10,355	0	11,073
Prime Contractor P Markups			50,023	48,722	1	98,747
TOTAL 101012001 Dehumidification	**1.00**	**LF**	**188,853**	**79,734**	**4**	**268,591**
SUBTOTAL 101012 Dehumidification			115,000	17,200	2	132,202
MARKUP			*1.642*	*4.636*	*1.890*	*2.032*
TOTAL 101012 Dehumidification			**188,853**	**79,734**	**4**	**268,591**
SUBTOTAL 1010 MAINTENANCE			219,621	97,769	69,320	386,710
MARKUP			*1.642*	*4.499*	*1.797*	*2.392*
TOTAL 1010 MAINTENANCE			**360,662**	**439,824**	**124,555**	**925,041**
1011						
101110						
101110001 Demo Piping & Tell-tale In Tank						
	357.00	m		8		8
Remove Tell-tale piping, DN 20			0	2,856	0	2,856
	615.00	m		10		10
Remove Tell-tale piping, DN 40			0	6,150	0	6,150
	163.00	ea		10		10
Remove Tell-tale jumper pipes, DN20			0	1,630	0	1,630
	16.00	mh		25		25
Remove gooseneck DN 800, Fill/Issue			0	400	0	400
	12.00	mh		25		25
Remove tee, reducer & valve, DN 400			0	300	0	300
	8.00	mh		25		25
Remove water piping in tank			0	200	0	200
	12.00	mh	0.1	25	0.1	25.2
Remove water piping in tunnel			1	300	1	302
	8000.00	kg		0.3		0.3
Material Disposal			0	2,400	0	2,400

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
101110							
	101110001 Demo Piping & Tell-tale In Tank						
Subtotal Direct Costs				1	14,236	1	14,238
Distributions				0	7,136	0	7,137
Prime Contractor P Markups				0	33,578	0	33,579
TOTAL 101110001 Demo Piping & Tell-tale In Tank		**1.00**	**LS**	**2**	**54,950**	**2**	**54,954**
SUBTOTAL 101110 Demo Piping & Tell-tale In Tank				1	14,236	1	14,238
MARKUP				*1.367*	*3.860*	*1.575*	*3.860*
TOTAL 101110 Demo Piping & Tell-tale In Tank				**2**	**54,950**	**2**	**54,954**
SUBTOTAL 1011 REPAIR				1	14,236	1	14,238
MARKUP				*1.367*	*3.860*	*1.575*	*3.860*
TOTAL 1011 REPAIR				**2**	**54,950**	**2**	**54,954**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
11							
1110							
111010							
	111010001 Basic Tank Repairs & Appurtanences						
		500.00	ea		15		15
	Remove Grout Tubes			0	7,500	0	7,500
		1.00	ls		1000		1000
	Remove All Misc Clips / Debris			0	1,000	0	1,000
		1000.00	ea	10	60		70
	Patch Plate Holes at Removed Tell tale Piping / Grout Tubes			10,000	60,000	0	70,000
	Subtotal Direct Costs			10,000	68,500	0	78,500
	Distributions			52	34,339	0	34,391
	Prime Contractor P Markups			3,622	161,567	0	165,189
	TOTAL 111010001 Basic Tank Repairs & Appurtanences	**1.00**	**LF**	**13,674**	**264,406**	**0**	**278,080**
	SUBTOTAL 111010 Basic Tank Repairs & Appurtanences			10,000	68,500	0	78,500
	MARKUP			*1.367*	*3.860*		*3.542*
	TOTAL 111010 Basic Tank Repairs & Appurtanences			**13,674**	**264,406**	**0**	**278,080**
	SUBTOTAL 1110 MAINTENANCE			10,000	68,500	0	78,500
	MARKUP			*1.367*	*3.860*		*3.542*
	TOTAL 1110 MAINTENANCE			**13,674**	**264,406**	**0**	**278,080**
1111							
111110							
	111110001 Basic Tank Repairs & Appurtanences						
	Subcontractor: S	4.00	m	2300	1050	440	3790
	Tank Piping - DN 800 diffuser			9,200	4,200	1,760	15,160
	Subcontractor: S	2.00	m	583	262	110	955
	Tank Piping - DN 400 piping mods.			1,166	524	220	1,910
	Subcontractor: S	2.00	m	146	66	28	240
	Tank Piping - DN 200 piping mods.			292	132	56	480
	Subcontractor: S	1.00	ls	2000	2400		4400
	Tank Piping - Hydrotest			2,000	2,400	0	4,400
	Subcontractor: S	1.00	ls		12000	1000	13000
	Tank strapping & calibration			0	12,000	1,000	13,000
		7.00	md	1000	240		1240
	Tower Mods. - Reinf @ Dome for Boom Operation, 4 per @ 30/hr x 8hr/day x 7 days)[a]			7,000	1,680	0	8,680
		10.00	md	1000	240		1240
	Tower Mods. - Provide Gauging Platform			10,000	2,400	0	12,400
		2.00	md		240		240
	Tank ATG - Remove existing gauge system			0	480	0	480
		1.00	ea	25000	1500		26500
	ATG system (type to be determined)			25,000	1,500	0	26,500

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
111110							
	111110001 Basic Tank Repairs & Appurtanences						
	Subcontractor: S	1.00	ea		1000		1000
	Tank ATG - System testing			0	1,000	0	1,000
	Subcontractor: S	1.00	ea	1732	5000		6732
	Elec wire and conduits for ATG system			1,732	5,000	0	6,732
	Subtotal Direct Costs			56,390	31,316	3,036	90,742
	Subcontractor Markups			2,892	5,076	610	8,578
	Distributions			308	18,243	596	19,147
	Prime Contractor P Markups			21,472	85,836	1,500	108,807
	TOTAL 111110001 Basic Tank Repairs & Appurtanences	**1.00**	**LF**	**81,061**	**140,471**	**5,742**	**227,274**
	SUBTOTAL 111110 Basic Tank Repairs & Appurtanences			56,390	31,316	3,036	90,742
	MARKUP			*1.438*	*4.486*	*1.891*	*2.505*
	TOTAL 111110 Basic Tank Repairs & Appurtanences			**81,061**	**140,471**	**5,742**	**227,274**
	SUBTOTAL 1111 REPAIR			56,390	31,316	3,036	90,742
	MARKUP			*1.438*	*4.486*	*1.891*	*2.505*
	TOTAL 1111 REPAIR			**81,061**	**140,471**	**5,742**	**227,274**
1112							
111210							
	111210001 Basic Tank Repairs & Appurtanences						
	Subcontractor: S	1.00	ea	3500	1000		4500
	Hi level control panel, Scully system			3,500	1,000	0	4,500
	Subcontractor: S	2.00	ea	250	80		330
	Hi level alarm sensors			500	160	0	660
	Subcontractor: S	1.00	ea	150	480		630
	Hi level alarm sensor holder, tank mods			150	480	0	630
	Subcontractor: S	1.00	ea	1732	5000		6732
	Elec wire and conduits for hi level alarm system			1,732	5,000	0	6,732
	Subtotal Direct Costs			5,882	6,640	0	12,522
	Subcontractor Markups			1,182	1,335	0	2,517
	Distributions			37	3,998	0	4,034
	Prime Contractor P Markups			2,559	18,809	0	21,368
	TOTAL 111210001 Basic Tank Repairs & Appurtanences	**1.00**	**LF**	**9,659**	**30,781**	**0**	**40,441**
	SUBTOTAL 111210 Basic Tank Repairs & Appurtanences			5,882	6,640	0	12,522
	MARKUP			*1.642*	*4.636*		*3.230*
	TOTAL 111210 Basic Tank Repairs & Appurtanences			**9,659**	**30,781**	**0**	**40,441**
	SUBTOTAL 1112 MINOR CONSTRUCTION			5,882	6,640	0	12,522
	MARKUP			*1.642*	*4.636*		*3.230*
	TOTAL 1112 MINOR CONSTRUCTION			**9,659**	**30,781**	**0**	**40,441**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
111210							
	111210001 Basic Tank Repairs & Appurtanences						

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
12							
1210							
121010							
	121010001 Repair Exist.Tank - Lower Dome	1460.00	m2	21.53	25.64		47.17
	Remove existing NRL Coating: Lower Dome (quote)			31,434	37,434	0	68,868
		400.00	ea	10	60		70
	Patch Plate Repair holes/thin spots			4,000	24,000	0	28,000
		400.00	ea	10	60		70
	Repair existing welds (150 long)			4,000	24,000	0	28,000
		0.25	m2		325		325
	Sawcut 3' x 3' a12" for sump/remove concrete			0	81	0	81
		1.00	ea	350	480		830
	600 DN sump, grout and weld in place			350	480	0	830
	Subtotal Direct Costs			39,784	85,996	0	125,779
	Distributions			207	43,109	0	43,316
	Prime Contractor P Markups			14,409	202,834	0	217,243
	TOTAL 121010001 Repair Exist.Tank - Lower Dome	**1.00**	**LF**	**54,400**	**331,939**	**0**	**386,338**
	SUBTOTAL 121010 Repair Exist.Tank - Lower Dome			39,784	85,996	0	125,779
	MARKUP			*1.367*	*3.860*		*3.072*
	TOTAL 121010 Repair Exist.Tank - Lower Dome			**54,400**	**331,939**	**0**	**386,338**
	SUBTOTAL 1210 MAINTENANCE			39,784	85,996	0	125,779
	MARKUP			*1.367*	*3.860*		*3.072*
	TOTAL 1210 MAINTENANCE			**54,400**	**331,939**	**0**	**386,338**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
13							
1310							
131010							
	131010001 Repair Exist.Tank - Barrel	4400.00	m2	21.53	25.64		47.17
	Remove existing NRL Coating: Barrel (quote)			94,732	112,816	0	207,548
		600.00	ea	10	60		70
	Patch Plate Repair holes/thin spots			6,000	36,000	0	42,000
		600.00	ea	10	60		70
	Repair existing welds (150 long)			6,000	36,000	0	42,000
	Subtotal Direct Costs			106,732	184,816	0	291,548
	Distributions			554	92,648	0	93,202
	Prime Contractor P Markups			38,657	435,916	0	474,573
	TOTAL 131010001 Repair Exist.Tank - Barrel	**1.00**	**LF**	**145,944**	**713,380**	**0**	**859,323**
	SUBTOTAL 131010 Repair Exist.Tank - Barrel			106,732	184,816	0	291,548
	MARKUP			*1.367*	*3.860*		*2.947*
	TOTAL 131010 Repair Exist.Tank - Barrel			**145,944**	**713,380**	**0**	**859,323**
	SUBTOTAL 1310 MAINTENANCE			106,732	184,816	0	291,548
	MARKUP			*1.367*	*3.860*		*2.947*
	TOTAL 1310 MAINTENANCE			**145,944**	**713,380**	**0**	**859,323**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
14							
1411							
141110							
	141110001 Repair Exist. Tell-tale Sys.- Ppg. to Sump						
		300.00	m	17	27	3	47
	Pipe, DN 40, Sched 80, including fittings			5,100	8,100	900	14,100
		26.00	m	21	34	4	59
	Pipe, DN 50, Sched 80, including fittings			546	884	104	1,534
		17.00	m	107	102	7	216
	Pipe, DN 150, Sched 80, including fittings			1,819	1,734	119	3,672
		10.00	m	660	450	31	1141
	Pipe, DN 450, Sched 40, including fittings			6,600	4,500	310	11,410
		13.00	ea	150	55	6	211
	Valve, DN 40, Gate			1,950	715	78	2,743
		1.00	ea	190	70	8	268
	Valve, DN 50, Gate			190	70	8	268
	Subcontractor: S	20.00	md		240		240
	NDE welds			0	4,800	0	4,800
	Subcontractor: S	8.00	md		240		240
	Hydrotest telltale			0	1,920	0	1,920
	Subtotal Direct Costs			16,205	22,723	1,519	40,447
	Subcontractor Markups			0	1,351	0	1,351
	Distributions			84	12,068	248	12,400
	Prime Contractor P Markups			5,869	56,781	625	63,275
	TOTAL 141110001 Repair Exist. Tell-tale Sys.- Ppg. to Sump	**1.00**	**LS**	**22,158**	**92,923**	**2,392**	**117,473**
	141110002 New Tell-tale System - Piping to Sump - Structural						
		1.00	ls	500	400		900
	Grout			500	400	0	900
	Subcontractor: S	17.00	m	125	250	40	415
	Drill concrete, 254 mm dia.			2,125	4,250	680	7,055
	Subcontractor: S	10.00	m	570	1600	260	2430
	Drill concrete, 610 mm dia			5,700	16,000	2,600	24,300
	Subtotal Direct Costs			8,325	20,650	3,280	32,255
	Subcontractor Markups			1,573	4,070	659	6,302
	Distributions			51	12,392	644	13,087
	Prime Contractor P Markups			3,585	58,305	1,620	63,511
	TOTAL 141110002 New Tell-tale System - Piping to Sump - Structural	**1.00**	**LS**	**13,534**	**95,417**	**6,204**	**115,155**
	SUBTOTAL 141110 Repair Exist. Tell-tale Sys.			24,530	43,373	4,799	72,702
	MARKUP			*1.455*	*4.342*	*1.791*	*3.200*
	TOTAL 141110 Repair Exist. Tell-tale Sys.			**35,692**	**188,340**	**8,596**	**232,628**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
141110							
	<u>141110002 New Tell-tale System - Piping to Sump - Structural</u>						
SUBTOTAL 1411 REPAIR				24,530	43,373	4,799	72,702
MARKUP				*1.455*	*4.342*	*1.791*	*3.200*
TOTAL 1411 REPAIR				**35,692**	**188,340**	**8,596**	**232,628**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
15							
1510							
151010							
	151010001 Upper Dome Repairs						
	Subcontractor: S	5.00	days			2821	2821
	UTscan 10% Dome			0	0	14,105	14,105
		250.00	ea	10	60		70
	Patch plate thin spots/holes			2,500	15,000	0	17,500
	Subcontractor: S	75.00	m2	51.45	43		94.45
	Spot coating repair			3,859	3,225	0	7,084
	Subtotal Direct Costs			6,359	18,225	14,105	38,689
	Subcontractor Markups			776	648	2,835	4,259
	Distributions			37	9,461	2,769	12,267
	Prime Contractor P Markups			2,584	44,515	6,968	54,067
	TOTAL 151010001 Upper Dome Repairs	**1.00**	**LF**	**9,755**	**72,849**	**26,677**	**109,282**
	SUBTOTAL 151010 Upper Dome Repairs			6,359	18,225	14,105	38,689
	MARKUP			*1.534*	*3.997*	*1.891*	*2.825*
	TOTAL 151010 Upper Dome Repairs			**9,755**	**72,849**	**26,677**	**109,282**
	SUBTOTAL 1510 MAINTENANCE			6,359	18,225	14,105	38,689
	MARKUP			*1.534*	*3.997*	*1.891*	*2.825*
	TOTAL 1510 MAINTENANCE			**9,755**	**72,849**	**26,677**	**109,282**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
16							
1610							
161010							
	161010001 Existing Tank Investigation						
		1.00	ls			98500	98500
	100% UT scan Barrel & Lower Dome (quote)			0	0	98,500	98,500
		56.00	md		240		240
	Helium Leak test			0	13,440	0	13,440
		28.00	day			100	100
	Helium leak test equipment			0	0	2,800	2,800
		150.00	ea	50			50
	Helium cylinders			7,500	0	0	7,500
		5.00	md		240		240
	Drill and tap helium test holes			0	1,200	0	1,200
		1000.00	ea	10	60		70
	Patch Helium test holes			10,000	60,000	0	70,000
	Subtotal Direct Costs			17,500	74,640	101,300	193,440
	Distributions			91	37,417	16,559	54,067
	Prime Contractor P Markups			6,338	176,050	41,670	224,057
	TOTAL 161010001 Existing Tank Investigation	**1.00**	**LF**	**23,929**	**288,106**	**159,529**	**471,565**
	SUBTOTAL 161010 Existing Tank Investigation			17,500	74,640	101,300	193,440
	MARKUP			*1.367*	*3.860*	*1.575*	*2.438*
	TOTAL 161010 Existing Tank Investigation			**23,929**	**288,106**	**159,529**	**471,565**
	SUBTOTAL 1610 MAINTENANCE			17,500	74,640	101,300	193,440
	MARKUP			*1.367*	*3.860*	*1.575*	*2.438*
	TOTAL 1610 MAINTENANCE			**23,929**	**288,106**	**159,529**	**471,565**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
17							
1710							
171010							
	171010001 Recoat Exist.Tank - Lower Dome						
		1460.00	m2	31.57		15.07	46.64
	FNEC Coating: Lower Dome (quote)			46,092	0	22,002	68,094
		1460.00	m2	21.23		23.27	44.5
	Prep lower dome for coating (quote)			30,996	0	33,974	64,970
	Subtotal Direct Costs			77,088	0	55,976	133,064
	Distributions			400	0	9,150	9,551
	Prime Contractor P Markups			27,921	0	23,026	50,946
	TOTAL 171010001 Recoat Exist.Tank - Lower Dome	**1.00**	**LF**	**105,409**	**0**	**88,153**	**193,562**
	SUBTOTAL 171010 Recoat Exist.Tank - Lower Dome			77,088	0	55,976	133,064
	MARKUP			*1.367*		*1.575*	*1.455*
	TOTAL 171010 Recoat Exist.Tank - Lower Dome			**105,409**	**0**	**88,153**	**193,562**
	SUBTOTAL 1710 MAINTENANCE			77,088	0	55,976	133,064
	MARKUP			*1.367*		*1.575*	*1.455*
	TOTAL 1710 MAINTENANCE			**105,409**	**0**	**88,153**	**193,562**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
18							
1810							
181010							
	181010001 Recoat Exist.Tank - Barrel						
		4400.00	m2	30.45		17.03	47.48
	FNEC Coating: Barrel (flexiblized Novalac epoxy) (quote)			133,980	0	74,932	208,912
		4400.00	m2	21		25.7	46.7
	Prep Barrel for coating (quote)			92,400	0	113,080	205,480
	Subtotal Direct Costs			226,380	0	188,012	414,392
	Distributions			1,176	0	30,734	31,910
	Prime Contractor P Markups			81,993	0	77,338	159,331
	TOTAL 181010001 Recoat Exist.Tank - Barrel	**1.00**	**LF**	**309,549**	**0**	**296,085**	**605,633**
	SUBTOTAL 181010 Recoat Exist.Tank - Barrel			226,380	0	188,012	414,392
	MARKUP			*1.367*		*1.575*	*1.461*
	TOTAL 181010 Recoat Exist.Tank - Barrel			**309,549**	**0**	**296,085**	**605,633**
	SUBTOTAL 1810 MAINTENANCE			226,380	0	188,012	414,392
	MARKUP			*1.367*		*1.575*	*1.461*
	TOTAL 1810 MAINTENANCE			**309,549**	**0**	**296,085**	**605,633**

RDHLCC0027611
BWS031151

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
19							
1910							
191010							
	191010001 Tank Piping - Lining						
	Subcontractor: S	17.00	m	2300	1050	440	3790
	Tank Piping - Fuel, Pipe Lining - DN 800			39,100	17,850	7,480	64,430
	Subcontractor: S	17.00	m	583	262	110	955
	Tank Piping - Fuel, Pipe Lining - DN 400			9,911	4,454	1,870	16,235
	Subcontractor: S	17.00	m	146	66	28	240
	Tank Piping - Fuel, Pipe Lining - DN 200			2,482	1,122	476	4,080
	Subcontractor: S	1.00	ls	2000	2400		4400
	Tank Piping - Hydrotest			2,000	2,400	0	4,400
	Subtotal Direct Costs			53,493	25,826	9,826	89,145
	Subcontractor Markups			10,751	5,191	1,975	17,916
	Distributions			334	15,548	1,929	17,811
	Prime Contractor P Markups			23,269	73,157	4,854	101,280
	TOTAL 191010001 Tank Piping - Lining			**87,846**	**119,722**	**18,584**	**226,153**
	1.00 LF						
	SUBTOTAL 191010 Tank Piping - Lining			53,493	25,826	9,826	89,145
	MARKUP			*1.642*	*4.636*	*1.891*	*2.537*
	TOTAL 191010 Tank Piping - Lining			**87,846**	**119,722**	**18,584**	**226,153**
	SUBTOTAL 1910 MAINTENANCE			53,493	25,826	9,826	89,145
	MARKUP			*1.642*	*4.636*	*1.891*	*2.537*
	TOTAL 1910 MAINTENANCE			**87,846**	**119,722**	**18,584**	**226,153**

REPAIR AND RECOAT EXISTING TANK
COST ESTIMATE - ADDITIVE BID ITEMS

SYSTEM REPORT
SUBMITTAL: FACD
SOFTWARE VERSION: SUCCESS 2.21
REPORT WRITER VERSION: R&R 6.0

CONSTRUCTION CONTRACT: PRL 98-9
DATABASE USED: EEI
PRINTING DATE: 05/27/1998
Page No. 1
ESTIMATE NAME:T19-repe

PROJECT: Red Hill Tank 19 - Rep. Exis, Additive Bid Items
LOCATION:FISC Pearl Harbor, HI
ESTIMATOR:EEI
PROJECT SIZE: 1 PRL 98
CONSTRUCTION FUNDS AVAILABLE:

CAT CODE: N/A
UIC:
PROJECT #: PRL 98-9
DATE OF ESTIMATE: 5/26/98
BID DATE: 4/99

WBS CODE	DESCRIPTION	COST/WBS BASED ON 1 PRL 98	SYSTEM UNITS/ U/M	COST/WBS UNIT	TOTAL MARKED UP COSTS MATL	LABOR	EQUIP	TOTAL
	TOTAL ESTIMATED CONTRACT (ROUNDED)							**747,000**
			*****PROJECT SUBTOTALS****		97,880	560,490	88,985	747,356
	ADDITIVE BID ITEMS	**747355.80/PRL**	**1 LS**		**97,880**	**560,490**	**88,985**	**747,356**
35	**-Cathodic Protection**	**550955.13/PRL**	**1 LS**		**77,020**	**473,925**	**11**	**550,955**
	MAINTENANCE	550955.13/PRL	1 LS		77,020	473,925	11	550,955
40	**-Under Tank Leak Detection**	**85311.61/PRL**	**1 LS**		**0**	**0**	**85,312**	**85,312**
	MINOR CONSTRUCTION	85311.61/PRL	1 LS		0	0	85,312	85,312
45	**-New Tell-tale System - Piping T**	**111089.06/PRL**	**1 LS**		**20,861**	**86,565**	**3,663**	**111,089**
	REPAIR	111089.06/PRL	1 LS		20,861	86,565	3,663	111,089

RDHLCC0027614
BWS031154

SUMMARY REPORT
SUBMITTAL: FACD
SOFTWARE VERSION: SUCCESS 2.21
REPORT WRITER VERSION: R&R 6.0

CONSTRUCTION CONTRACT: PRL 98-9
DATABASE USED: EEI
PRINTING DATE: 05/27/1998
Page No. 1
ESTIMATE NAMET19-repe

PROJECT: Red Hill Tank 19 - Rep. Exis, Additive Bid Items
LOCATION: FISC Pearl Harbor, HI
ESTIMATOR: EEI
PROJECT SIZE: 1 PRL 98
CONSTRUCTION FUNDS AVAILABLE:

CAT CODE: N/A
UIC:
PROJECT #: PRL 98-9
DATE OF ESTIMATE: 5/26/98
BID DATE: 4/99

WBS CODE	DESCRIPTION	COST/WBS BASED ON 1 PRL 98	SYSTEM UNITS/ U/M	COST/WBS UNIT	TOTAL MARKED UP COSTS MATL	LABOR	EQUIP	TOTAL
	TOTAL ESTIMATED CONTRACT (ROUNDED)							**747,000**
			*****PROJECT SUBTOTALS****		97,880	560,490	88,985	747,356
	ADDITIVE BID ITEMS	**747355.80/PRL**	**1 LS**		**97,880**	**560,490**	**88,985**	**747,356**
35	---Cathodic Protection	550955.13/PRL	1 LS		77,020	473,925	11	550,955
40	---Under Tank Leak Detection	85311.61/PRL	1 LS		0	0	85,312	85,312
45	---New Tell-tale System - Pipi	111089.06/PRL	1 LS		20,861	86,565	3,663	111,089

CONTRACTOR MARKUP REPORT
SUBMITTAL: FACD
SOFTWARE VERSION: SUCCESS 2.1
REPORT WRITER VERSION: R&R 6.0

CONSTRUCTION CONTRACT: PRL 98-9
DATABASE USED :EEI
PRINTING DATE :05/27/98
PAGE NUMBER : 1
ESTIMATE NAME : T19-repexis,

PROJECT: Red Hill Tank 19 - Rep. Exis, Additive Bid Items
LOCATION: FISC Pearl Harbor, HI
ESTIMATOR:EEI
PROJECT SIZE: 1.00PRL 98-9
AUTHORIZED CONSTRUCTION FUNDS:

CAT CODE:N/A
UIC:
PROJECT #:
DATE OF ESTIMATE:5/26/98
BID DATE: 4/99

CONTRACTOR	DESCRIPTION	MATERIAL	LABOR	EQUIPMENT
P	**Prime Contractor**			
	WORKER'S COMPENSATION/UNEMPL/SOC. SEC TAXES	0.00	32.00	0.00
	Hawaii cost adjustment compared to AK	0.00	31.00	0.00
	PRIME OVERHEAD	10.00	10.00	10.00
	PRIME PROFIT	6.00	6.00	6.00
	PRIME HOME OFFICE	3.00	3.00	3.00
	BOND	1.00	1.00	1.00
	ESCALATION	1.02	1.02	1.02
	ESTIMATING CONTINGENCY	5.00	5.00	5.00
	HI GET	4.17	4.17	4.17
	SALES TAX	0.50	0.00	0.50
	COMPOSITE MARKUPS FOR P			
	MATERIAL COMPOSITE MARKUP	**1.347**		
	LABOR COMPOSITE MARKUP	**2.318**		
	EQUIPMENT COMPOSITE MARKUP	**1.347**		
S	**Subcontractors**			
	SUBCONTRACTOR OVERHEAD	10.00	10.00	10.00
	SUBCONTRACTOR PROFIT	6.00	6.00	6.00
	SUBCONTRACTOR HOME OFFICE	3.00	3.00	3.00
	COMPOSITE MARKUPS FOR S			
	MATERIAL COMPOSITE MARKUP	**1.201**		
	LABOR COMPOSITE MARKUP	**1.201**		
	EQUIPMENT COMPOSITE MARKUP	**1.201**		

PROJECT: Red Hill Tank 19 - Rep. Exis, Additive B
LOCATION: FISC Pearl Harbor, HI
ESTIMATOR: EEI
PROJECT SIZE: 1 PRL 98
AUTHORIZED CONSTRUCTION FUNDS:

CAT CODE: N/A
UIC:
PROJECT #: PRL 98-9
DATE OF ESTIMATE: 5/26/98
BID DATE: 4/99

DETAIL REPORT
UNBURDENED LINE ITEMS
FACD
SOFTWARE VERSION: SUCCESS 3.0
REPORT WRITER VERSION: R&R 6.0

CONSTRUCTION CONTRACTPRL 98-9

DATABASE USED: EEI
PRINTING DATE:05/27/1998

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
35							
3500							
350010	**3500100 Cathodic Protection**						
		48.00	ea	150	8		158
	Anodes (MMO 19.1 mm x 1219 mm)			7,200	384	0	7,584
		48.00	ea	28	8		36
	Anode Ventralizer Assembly			1,344	384	0	1,728
		869.00	m	1.27			1.27
	Anode Lead Wire, No 4 AWG, HMWPE			1,104	0	0	1,104
	Subcontractor: S	580.00	m		255		255
	Anode Hole Drilling & Backfilling Complete			0	147,900	0	147,900
	Subcontractor: S	13581.00	kg	1.5			1.5
	Coke Backfill			20,372	0	0	20,372
	Subcontractor: S	6.67	m3	140		1	141
	Cement Grout			934	0	7	940
		580.00	m	3.56			3.56
	Anode Vent Pipe			2,065	0	0	2,065
		4.00	ea	280	295		575
	Custom Anode Junction Box (NEMA 4X)			1,120	1,180	0	2,300
		1.00	ea	3100	1500		4600
	Oil-Cooled Rectifier, 50 Volt, 200 DC Amp			3,100	1,500	0	4,600
		322.00	liters	1.58	7		8.58
	Rectifier Oil			509	2,254	0	2,763
	Subcontractor: S	1.00	ea	760	1100		1860
	240 Volt, 20 Amp AC power for rectifier			760	1,100	0	1,860
	Subcontractor: S	1.00	ea	220	120		340
	AC Disconnect Switch, Fused 3P-40 Amp			220	120	0	340
		3.00	ea	32	110		142
	Rectifier Pipe Bollards complete			96	330	0	426
	Subcontractor: S	60.00	m		32		32
	Micro Directional Drill for 5 Ref Electrodes			0	1,920	0	1,920
		10.00	ea	245			245
	Reference Electrodes (2 per hole)			2,450	0	0	2,450
		4.00	ea	190	32		222
	Concrete Electrical Pull Box			760	128	0	888
		0.72	m3	155	616		771
	Concrete Pads (inc rebar & forms)			112	444	0	555

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
350010							
	3500100 Cathodic Protection						
		50.00	m	5.04	7		12.04
	Cathode Header Cable, # 2/0 AWG HMP/PE			252	350	0	602
		320.00	m	5.04	2.12		7.16
	Anode Header Cable, #2/0 AWG HMP/PE			1,613	678	0	2,291
		320.00	m	5	2.12		7.12
	50 mm PVC conduit (anode cables)			1,600	678	0	2,278
	Subcontractor: S	150.00	m		5.5		5.5
	Trenching (Min. 0.1 m wide x 0.68 m deep)			0	825	0	825
	Subcontractor: S	150.00	m		5.5		5.5
	Trench Backfilling & Compaction			0	825	0	825
	Subcontractor: S	2.40	m3	120			120
	Bedding Sand (Min. 0.1 m wide x 0.16 m deep)			288	0	0	288
		256.00	hrs		20		20
	Cathodic Protection construction foreman			0	5,120	0	5,120
		256.00	hrs	26.35	30		56.35
	QC Specialist, Corrosion Engineer			6,746	7,680	0	14,426
	Subtotal Direct Costs			52,642	173,800	7	226,449
	Subcontractor Markups			4,537	30,688	1	35,226
	Prime Contractor P Markups			19,840	269,437	3	289,280
	TOTAL 3500100 Cathodic Protection			**77,020**	**473,925**	**11**	**550,955**
	1.00 LS						
	SUBTOTAL 35001 Cathodic Protection			52,642	173,800	7	226,449
	MARKUP			*1.463*	*2.727*	*1.610*	*2.433*
	TOTAL 35001 Cathodic Protection			**77,020**	**473,925**	**11**	**550,955**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
40							
4000							
400010							
	4000100 Under Tank Leak Detection						
	Subcontractor: S	10.00	day			3500	3500
	Drill Rig (10) 38 to 50 DN Directional Boring x 46 long ea			0	0	35,000	35,000
	Subcontractor: S	1.00	ls			18000	18000
	Mob/Demob			0	0	18,000	18,000
	Subtotal Direct Costs			0	0	53,000	53,000
	Subcontractor Markups			0	0	10,652	10,652
	Prime Contractor P Markups			0	0	21,660	21,660
	TOTAL 4000100 Under Tank Leak Detection	**1.00**	**LS**	**0**	**0**	**85,312**	**85,312**
	SUBTOTAL 40001 Under Tank Leak Detection			0	0	53,000	53,000
	MARKUP					*1.610*	*1.610*
	TOTAL 40001 Under Tank Leak Detection			**0**	**0**	**85,312**	**85,312**

WBS CODE	DESCRIPTION	QTY	UM	MATERIAL	LABOR	EQUIPMENT	TOTAL
45							
4501							
	4501 New Tell-tale System - Piping to top of tank	911.00	m	17	41	3	61
Pipe, DN 40, Sched 80				15,487	37,351	2,733	55,571
Subtotal Direct Costs				15,487	37,351	2,733	55,571
Prime Contractor P Markups				5,374	49,214	930	55,518
TOTAL 4501 New Tell-tale System - Piping to top of tank		**1.00**	**LS**	**20,861**	**86,565**	**3,663**	**111,089**

	MATERIAL	LABOR	EQUIPMENT	TOTAL
SUBTOTAL 45 New Tell-tale System - Piping To Top Of Tank	15,487	37,351	2,733	55,571
MARKUP	*1.347*	*2.318*	*1.340*	*1.999*
TOTAL 45 New Tell-tale System - Piping To Top Of T	**20,861**	**86,565**	**3,663**	**111,089**