

HARZA-EBASCO

Susitna Joint Venture
Document Number

2541

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SUSITNA

HYDROELECTRIC PROJECT

FEASIBILITY LEVEL ESTIMATE

VOLUME I

HARZA-EBASCO SUSITNA JOINT VENTURE

JULY 1984

WATANA

SUMMARY OF COST ESTIMATE

ALL COSTS ARE AT JANUARY 1982 PRICE LEVEL

AND TRANSMISSION PLANT COSTS ARE AS ESTIMATED BY ACRES

TABLE D.1: SUMMARY OF COST ESTIMATE

JANUARY 1982 DOLLARS \$ X 10⁶

<u>CATEGORY</u>	<u>WATANA</u>	<u>DEVIL CANYON</u>	<u>TOTAL</u>
Production Plant	\$ 2,053	\$ 983	\$ 3,036
Transmission Plant	456	105	561
General Plant	6	6	12
Indirect	<u>379</u>	<u>171</u>	<u>550</u>
Total Construction	\$ 2,894	\$ 1,265	\$ 4,159
Overhead Construction	<u>467</u>	<u>204</u>	<u>671</u>
TOTAL PROJECT	\$ 3,361	\$ 1,469	\$ 4,830

TABLE D.2 (Cont'd)

Line		Amount	Totals	
<u>Number</u>	<u>Description</u>	<u>(x 10⁶)</u>	<u>(x 10⁶)</u>	<u>Remarks</u>
	<u>TOTAL BROUGHT FORWARD</u>		\$ 2,053	
	<u>TRANSMISSION PLANT</u>			
350	Land & Land Rights	8		
352	Substation & Switching Station Structures & Improvements	12		
353	Substation & Switching Station Equipment	131		
354	Steel Towers & Fixtures	131		
356	Overhead Conductors & Devices	100		
359	Roads & Trails	13		
	Subtotal	\$ 395		
	Contingency	61		
	<u>TOTAL TRANSMISSION PLANT</u>		\$ 456	
			\$ 2,509	

TABLE D.2 (Cont'd)

Line Number	Description	Amount (x 10 ⁶)	Totals (x 10 ⁶)	Remarks
	TOTAL BROUGHT FORWARD		\$ 2,509	
	<u>GENERAL PLANT</u>			
389	Land & Land Rights	\$ -		Included under 330
390	Structures & Improvements	-		Included under 331
391	Office Furniture/Equipment	-		Included under 399
392	Transportation Equipment	-		" "
393	Stores Equipment	-		" "
394	Tools Shop & Garage Equipment	-		" "
395	Laboratory Equipment	-		" "
396	Power-Operated Equipment	-		" "
397	Communications Equipment	-		" "
398	Miscellaneous Equipment	-		" "
399	Other Tangible Property	5		" "
	Subtotal	\$ 5		
	Contingency	1		
	TOTAL GENERAL PLANT		\$ 6	
			2,515	

TABLE D.2 (Cont'd)

Line Number	Description	Amount (x 10 ⁶)	Totals (x 10 ⁶)	Remarks
	TOTAL BROUGHT FORWARD		\$ 2,515	
	<u>INDIRECT COSTS</u>			
61	Temporary Construction Facilities	\$ -		See Note
62	Construction Equipment	-		See Note
63	Camp & Commissary	302		
64	Labor Expense	-		See Note
65	Superintendence	-		See Note
66	Insurance	-		See Note
68	Mitigation	29		
69	Fees	-		See Note
	Note: Costs under accounts 61,62,64,65,66 and 69 are included in the appropriate direct costs listed above.			
	Subtotal	\$ 331		
	Contingency	48		
	TOTAL INDIRECT COSTS		\$ 379	
	TOTAL CONSTRUCTION COSTS		\$ 2,894	

TABLE D.2 (Cont'd)

Line		Amount	Totals	
<u>Number</u>	<u>Description</u>	<u>(x 10⁶)</u>	<u>(x 10⁶)</u>	<u>Remarks</u>
	TOTAL CONSTRUCTION COSTS BROUGHT FORWARD.....		\$ 2,894	
	<u>OVERHEAD CONSTRUCTION COSTS (PROJECT INDIRECTS)</u>			
71	Engineering/Administration and Enviromental Monitoring	\$ 467		
72	Legal Expenses	-		Included in 71
75	Taxes	-		Not Applicable
76	Administrative & General Expenses	-		Included in 71
77	Interest	-		Not Included
80	Earnings/Expenses during Construction	-		Not Included
	Total Overhead		\$ <u>467</u>	
	TOTAL PROJECT COST - January 1982 Price Level.		\$ 3,361	

TABLE D.2 (Cont'd)

Line		Amount	Totals	
<u>Number</u>	<u>Description</u>	<u>(x 10⁶)</u>	<u>(x 10⁶)</u>	<u>Remarks</u>
	TOTAL CONSTRUCTION COSTS BROUGHT FORWARD.....		\$ 2,894	
	<u>OVERHEAD CONSTRUCTION COSTS (PROJECT INDIRECTS)</u>			
71	Engineering/Administration and Enviromental Monitoring	\$ 467		
72	Legal Expenses	-		Included in 71
75	Taxes	-		Not Applicable
76	Administrative & General Expenses	-		Included in 71
77	Interest	-		Not Included
80	Earnings/Expenses during Construction	-		Not Included
	Total Overhead		\$ 467	
	TOTAL PROJECT COST - January 1982 Price Level.		\$ 3,361	

TABLE D.3: ESTIMATE SUMMARY - DEVIL CANYON

January 1983 Price Level

Line		Amount	Totals	
<u>Number</u>	<u>Description</u>	<u>(x 10⁶)</u>	<u>(x 10⁶)</u>	<u>Remarks</u>
<u>PRODUCTION PLANT</u>				
330	Land & Land Rights	\$ 22		
331	Powerplant Structures & Improvements	74		
332	Reservoir, Dams & Waterways	577		
333	Waterwheels, Turbines & Generators	42		
334	Accessory Electrical Equipment	14		
335	Miscellaneous Powerplant Equipment (Mechanical)	11		
336	Roads & Railroads	<u>118</u>		
	Subtotal	\$ 858		
	Contingency	<u>125</u>		
	TOTAL PRODUCTION PLANT		\$ 983	

TABLE D.3 (Cont'd)

Line Number	Description	Amount (x 10 ⁶)	Totals (x 10 ⁶)	Remarks
	<u>TOTAL BROUGHT FORWARD</u>		\$ 983	
	<u>TRANSMISSION PLANT</u>			
350	Land & Land Rights	0		
352	Substation & Switching Station Structures & Improvements	7		
353	Substation & Switching Station Equipment	21		
354	Steel Towers & Fixtures	29		
356	Overhead Conductors & Devices	34		
359	Roads & Trails	--		
	Subtotal	\$ 91		
	Contingency	14		
	<u>TOTAL TRANSMISSION PLANT</u>		\$ 105	
			\$ 1,088	

TABLE D.3 (Cont'd)

Line Number	Description	Amount (x 10 ⁶)	Totals (x 10 ⁶)	Remarks
	TOTAL BROUGHT FORWARD		\$ 1,088	
	<u>GENERAL PLANT</u>			
389	Land & Land Rights	\$ -		Included under 330
390	Structures & Improvements	-		Included under 331
391	Office Furniture/Equipment	-		Included under 399
392	Transportation Equipment	-		" "
393	Stores Equipment	-		" "
394	Tools Shop & Garage Equipment	-		" "
395	Laboratory Equipment	-		" "
396	Power-Operated Equipment	-		" "
397	Communications Equipment	-		" "
398	Miscellaneous Equipment	-		" "
399	Other Tangible Property	5		" "
	Subtotal	\$ 5		
	Contingency	1		
	TOTAL GENERAL PLANT		\$ 6	
			1,094	

TABLE D.3 (Cont'd)

Line Number	Description	Amount (x 10 ⁶)	Totals (x 10 ⁶)	Remarks
	TOTAL BROUGHT FORWARD		\$ 1,094	
	<u>INDIRECT COSTS</u>			
61	Temporary Construction Facilities	\$ -		See Note
62	Construction Equipment	-		See Note
63	Camp & Commissary	145		
64	Labor Expense	-		See Note
65	Superintendence	-		See Note
66	Insurance	-		See Note
68	Mitigation	4		
69	Fees	-		See Note
	Note: Costs under accounts 61,62,64,65,66 and 69 are included in the appropriate direct costs listed above.			
	Subtotal	\$ 149		
	Contingency	22		
	TOTAL INDIRECT COSTS		\$ 171	
	TOTAL CONSTRUCTION COSTS		\$ 1,265	

TABLE D.3 (Cont'd)

Line		Amount	Totals	
<u>Number</u>	<u>Description</u>	<u>(x 10⁶)</u>	<u>(x 10⁶)</u>	<u>Remarks</u>
	TOTAL CONSTRUCTION COSTS BROUGHT FORWARD.....		\$ 1,265	
	<u>OVERHEAD CONSTRUCTION COSTS (PROJECT INDIRECTS)</u>			
71	Engineering/Administration and Enviromental Monitoring	\$ 204		
72	Legal Expenses	-		Included in 71
75	Taxes	-		Not Applicable
76	Administrative & General Expenses	-		Included in 71
77	Interest	-		Not Included
80	Earnings/Expenses during Construction	-		Not Included
	Total Overhead		\$ 204	
	TOTAL PROJECT COST - January 1982 Price Level.		\$ 1,469	

TABLE D.4: MITIGATION MEASURES - SUMMARY OF COSTS INCORPORATED

IN CONSTRUCTION COSTS ESTIMATES

January 1982 Price Level

<u>COSTS INCORPORATED IN CONSTRUCTION ESTIMATES</u>		<u>WATANA</u> <u>\$ x 10³</u>	<u>DEVIL CANYON</u> <u>\$ x 10³</u>	<u>Remarks</u>
1.	Outlet Facilities			
	Main Dam at Devil Canyon		\$ 12,600	
	Tunnel Spillway at Watana	\$ 53,000		
2.	Restoration of Borrow Area D	-	-	Included in 5
3.	Restoration of Borrow Area F	-	-	Included in 5
4.	Restoration of Camp and Village	1,100	900	
5.	Restoration of Construction Sites	11,500	1,500	
6.	Fencing around Camp	300	200	
7.	Fencing around Garbage Disposal Area	-	-	Included in 6
8.	Multilevel Intake Structure	21,000	N.A.	
9.	Camp Facilities Associated with trying to Keep Workers out of Local Communities....	9,900	6,400	
10.	Restoration of Haul Roads	-	-	Included in 5
	 SUBTOTAL	 96,800	 21,600	
	Contingency	14,200	3,200	
	 TOTAL CONSTRUCTION	 111,000	 24,800	
	Engineering	14,000	3,100	
	 TOTAL PROJECT	 125,000	 27,900	 152,900 =====

TABLE D.7 - SUSITNA HYDROELECTRIC PROJECT

WATANA & DEVIL CANYON CUMMULATIVE AND ANNUAL CASH FLOW

January 1982 Dollars - in Millions

Year No. from start of Construction	Annual Cash Flow \$			Cummulative Cash Flow (To End of Year)		
	Watana	Devil Canyon	Combined	Watana	Devil Canyon	Combined
0*	104.9*	45.8*	150.7*	104.9*	45.8*	150.7*
1	238.7		238.7	343.6	45.8	389.4
2	311.9		311.9	655.5	45.8	701.3
3	262.4		262.4	917.9	45.8	963.7
4	484.5		484.5	1,402.4	45.8	1,448.2
5	475.4		475.4	1,877.8	45.8	1,923.6
6	477.0	79.4	556.4	2,354.8	125.2	2,480.0
7	465.6	52.2	517.8	2,820.4	177.4	2,997.8
8	288.5	81.4	369.9	3,108.9	258.8	3,367.7
9	170.6	39.6	210.2	3,279.5	298.4	3,577.9
10	81.4	72.6	154.0	3,360.9	371.0	3,731.9
11		151.7	151.7		522.7	3,883.6
12		237.4	237.4		760.1	4,121.0
13		250.6	250.6		1,010.7	4,371.6
14		241.1	241.1		1,251.8	4,612.7
15		193.2	193.2		1,445.0	4,805.9
16		23.8	23.8		1,468.8	4,829.7

* Estimated costs related to Engineering Administration and Environmental Studies expected to be incurred prior to issuance of FERC license and prior to beginning of construction.

PRICE REPORT

WATANA - FERC APPLICATION

FILE # 1563-103

FEASIBILITY LEVEL

(L LEVY, RAM D, OEB)

SUMMARY OF COST ESTIMATE

JULY 10, 1984

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ACCOUNT 330 LAND & LAND RIGHTS	51,000,000
ACCOUNT 331 POWERHOUSE	69,458,841
ACCOUNT 332.1 RESERVOIR, DAMS & TUNN.	48,060,187
ACCOUNT 332.2 DIVERSION TUNNELS	97,348,501
ACCOUNT 332.22 U/S COFFERDAMS	18,350,520
ACCOUNT 332.23 D/S COFFERDAMS	2,689,410
ACCOUNT 332.3 MAIN DAM	800,962,223
ACCOUNT 332.4 RELICT CHANNEL	58,613,000
ACCOUNT 332.51 OUTLET FACILITIES	39,151,369
ACCOUNT 332.52 MAIN SPILLWAY	120,042,294
ACCOUNT 332.6 POWER&OUTLET INTAKE	96,979,369
ACCOUNT 332.8 PENSTOCKS & SURGE CHAMBER	54,500,016
ACCOUNT 332.9 TAILRACE	14,129,012
ACCOUNT 333 WATERWHEELS, TURBINES&GEN	70,800,000
ACCOUNT 334 ACCESSORY ELECTRICAL	21,200,000
ACCOUNT 335 MISC POWER PLANT EQ.	13,800,000
ACCOUNT 336 ROADS, RAIL FACILITIES	213,864,000
ACCOUNT 350-359 TRANSMISSION LINES	395,558,000
ACCOUNT 399 GENERAL PLANT	5,092,000
ACCOUNT (63) CONSTRUCTION CAMP	301,824,033
ACCOUNT (68) MITIGATION	29,200,000

SUBTOTAL -	2,522,622,775
CONTINGENCY ALLOWANCE	371,377,225

TOTAL CONSTRUCTION COST	2,894,000,000
ENGINEERING & ADMINISTRATION	467,000,000

TOTAL COST - JAN 82 PRICE LEVEL	3,361,000,000
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NOTE: THE TRANSMISSION LINE COSTS ARE TAKEN FROM ACRES
1982 LEVEL ESTIMATE.

DATE JULY 9, 1984
FILE NO 1563-103
PROJECT WATANA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
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A
SCHEME 2185B
(FILL TYPE DAM)

330	LAND & LAND RIGHTS	1	LS	51000000.00	51,000,000
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SUBTOTAL, PAGE 1 51,000,000

SUBTOTAL - ACCOUNT 330 LAND & LAND RIGHTS 51,000,000

DATE JULY 9, 1984
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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
331.1	UNDERGROUND POWERHOUSE				
.11	POWERHOUSE & TAILRACE				
.111	EXCAVATION - ROCK	168000	CY	79.42	13,342,560
.113	DRILL & GROUT U/S OF PH	44730	LF	29.59	1,323,561
.114	CONCRETE	43500	CY	387.75	16,867,125
.117	DRAIN HOLES	44430	LF	23.36	1,037,885
.118	METALWORK	1	LS	2831425.00	2,831,425
.119	ARCHITECTURAL	1	LS	1146905.00	1,146,905
.11C	MECHANICAL	1	LS	1763415.00	1,763,415
.12	ACCS. TUNLS&PORTALS				
.120	35'X28' EXC	2970	LF	3140.95	9,328,621
SUBTOTAL, PAGE 2					47,641,497

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.121	21'H X 25' W.H.S SURGE CH. ACCESS	100 LF	2085.56	519,401
.123	DRAINAGE GALLERY 10'X10' EXC	570 LF	1100.96	627,550
.12A	ACCESS PORTAL & ROAD COM EXC	94420 CY	5.67	535,361
.12B	ACCESS PORTAL & ROAD ROCK EXC	71790 CY	21.00	1,565,022
.12C	VENTILATION GALLERY 14' H X 12' W H.S.	560 LF	1323.65	741,244
.124	PORTALS CONCRETE	600 CY	426.68	256,008
.125	TUNNEL SLAB CONCRETE	1690 CY	317.68	536,879
.126	PENSTOCK ACCESS PLUG CONCRETE	7275 CY	197.77	1,438,777
.129	MAIN PORTAL DOORS	2 SETS	97960.90	195,938
SUBTOTAL, PAGE 3				6,416,100

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.13	ACCESS SHAFT				
.131	ROCK EXC 23" DIA	740 LF		3673.53	2,710,408
.134.	CONCRETE LINING 20" ID	740 LF		2324.95	1,720,467
.138	MISC. METALWORK	50 TONS		3893.10	194,655
.13C	ELEVATORS	1 LS		927958.00	927,958
.14	FIRE PROTECTION HEADTANK	1 LS		470908.50	470,909
.15	BUS TUNNELS				
.151	EXC HORIZONTAL 22X22	156 LF		2874.66	448,447
.152	EXC INCLINED 16X16	282 LF		2385.69	672,765
.154	BUS TUNNEL SLAB CONC	350 CY		317.68	111,188
.16	TRANSFORMER GALLERY				
.161	EXCAVATION	26200 CY		85.21	2,232,502

SUBTOTAL, PAGE 4

9,497,299

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.164	CONCRETE SLAB	2100 CY	317.68	692,542
.167	DRAIN HOLES	8300 LF	23.36	193,888
.17	BUS SHAFTS			
.171	EXCAVATION 10.5 DIA	560 LF	1971.47	1,104,020
.174	CON. LINING 9.0 DIA	560 LF	1255.13	702,876
.178	MISC. METALWORK	9 TONS	3893.10	35,038
.179	ENCLOSURES (ARCH.)	1 LS	44692.70	44,693
.170	MANHOIST	1 EA	204731.50	204,732
.18	CARE OF WATER	1 LS	520301.00	520,301
.19	INSTRUMENTATION	1 LS	668055.00	668,055
.2	MISC. BUILDINGS & STRUCTURES	1 LS	1737720.00	1,737,720

SUBTOTAL, PAGE 5 5,903,865

SUBTOTAL - ACCOUNT 331 POWERHOUSE 69,458,041

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
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332
RESERVOIRS, DAMS AND
WATERWAYS

.1	RESERVOIR CLEARING	37500	ACRES	1281.60	48,060,187
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SUBTOTAL, PAGE 6 48,060,187

SUBTOTAL - ACCOUNT 332.1 RESERVOIR, DAMS & TUNN. 48,060,187

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.2	DIVERSION TUNNELS				
.210	ACCESS TUNNEL TO GATE CHAMBER 15'X20'	2100	LF	1731.65	3,636,465
.211	DIVERSION TUNNEL EXCAVATION 39 FT DIA	7220	LF	3510.02	25,342,300
.21A	DIVERSION TUNNEL EXCAVATION 48 FT DIA	760	LF	4665.49	3,545,769
.21B	PORTALS - COM EXC	67100	CY	7.37	494,527
.21C	PORTALS - ROCK EXC	85550	CY	21.96	1,878,678
.21D	EMERGENCY RELEASE CHAMBERS ROCK EXC	4700	CY	98.32	462,104
.212	TEMPORARY COFFERDAM FILL FOR U/S PORTALS	34540	CY	4.73	163,374
.214	TUNNEL CONC. LINING- 36' ID	7220	LF	3281.10	23,689,542
SUBTOTAL, PAGE 7					59,212,767

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.21E	TUNNEL CONC. LINING- 45" ID	760	LF	3281.10	2,493,636
.215	PORTAL CONCRETE	18525	CY	266.29	4,933,022
.215A	MASS CONCRETE	200	CY	240.30	48,060
.216	FLIP BUCKET CONCRETE	2000	CY	265.96	531,920
.217	EMERGENCY RELEASE CHAMBER CONCRETE	15300	CY	389.31	5,956,443
.218	SUSPENDED METAL ROOF- EMERG. RELEASE CHMB	2775	SF	52.03	144,793
.219	LOWER DIVERSION TUNNEL PLUG CONCRETE	5570	CY	197.77	1,101,579
.21F	LOWER DIVERSION TUNNEL PLUG CONCRETE AT TAILRACE TUNNEL	8500	CY	197.77	1,681,045
.21G	DIV TUNNEL MECHANICAL	1	LS	21136400.00	21,136,400
SUBTOTAL, PAGE 8					38,026,488

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
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.21H	GRANULAR BACKFILL	8245	CY	13.25	109,246
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SUBTOTAL, PAGE 9					109,246
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SUBTOTAL - ACCOUNT 332.2 DIVERSION TUNNELS					97,348,501
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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.22	U/S COFFERDAM				
.221	COMMON EXCAVATION	1000	CY	4.25	4,250
.222	IMPERVIOUS FILL	52000	CY	11.06	575,120
.223	ROCK & GRAVEL FILL	313000	CY	13.25	4,147,250
.224	FILTERS	33000	CY	13.25	437,250
.225	CUT-OFF WALL U/S	39000	SF	38.65	1,507,350
.226	CARE OF WATER	1	LS	11679300.00	11,679,300
SUBTOTAL, PAGE 10					18,350,520
SUBTOTAL - ACCOUNT 332.22 U/S COFFERDAMS					18,350,520

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.23	D/S COFFERDAM				
.231	COMMON EXCAVATION	5000	CY	4.25	21,250
.232	IMPERVIOUS FILL	47250	CY	11.06	522,585
.233	ROCK & GRAVEL FILL	42800	CY	13.25	567,100
.235	CUTOFF WALL D/S	29500	SF	38.65	1,140,175
.236	REMOVAL OF COFFERDAM	90000	CY	4.87	438,300
SUBTOTAL, PAGE 11					2,689,410
SUBTOTAL - ACCOUNT 332.23 D/S COFFERDAMS					2,689,410

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.3	MAIN DAM				
.311	EXCAVATION - COMMON	4936000	CY	5.57	27,493,520
.312	EXCAVATION - ROCK	1214000	CY	19.22	23,333,080
.31A	IMPERVIOUS FILL	7877000	CY	11.06	87,119,620
.31B	PROVIDE DRYING FACILITIES FOR IMPERVIOUS FILL	1	LS	13282300.00	13,282,300
.31C	DRYING IMPERVIOUS FILL	1576000	CY	7.32	11,536,320
.31D	U/S GRAVEL & D/S SAND FILL	*****	CY	13.25	273,294,500
.31E	FILTERS	6338000	CY	13.25	83,978,500
.31F	ROCKFILL FROM QUARRY	*****	CY	11.31	209,952,054
.31G	ROCKFILL FROM STOCKPILE	2307000	CY	4.73	10,912,110

SUBTOTAL, PAGE 12

740,982,004

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PROJECT WATANA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.31H	ROCKFILL DIRECTLY FROM EXCAVATION	3924600	CY	0.70	3,061,188
.3H1	RAKING ROCKFILL	902000	CY	0.75	676,500
.313	DRILL&GROUT - CONSOL.	345000	LF	28.03	9,670,350
.31I	DRILL&GROUT - CURTAIN 23.54	LF		31.14	8,826,633
.314	DAM DENTAL CONCRETE	85000	CY	155.72	13,236,200
.317	DRAIN HOLES	136000	LF	23.36	3,176,960
.32	GROUT GALLRS&PORTALS				
.321	HORIZ. GALLRS 10X10	7450	LF	839.35	6,253,157
.322	INCLINED GALLERIES 10' X 10'	2580	LF	1286.28	3,318,602
.323	SHAFTS 10X10	900	LF	2331.18	2,098,066
.32H	PORTALS - COMMON EXC	3600	CY	4.25	15,300

SUBTOTAL, PAGE 13

50,332,956

DATE JULY 9, 1984
FILE NO 1563-103
PROJECT WATANA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.32B	PORTALS - ROCK EXC	1000	CY	18.84	18,840
.324	TUNNEL CONCRETE SLABS	3410	CY	317.68	1,083,289
.325	PORTAL CONCRETE	20	CY	467.17	9,343
.326	TUNNEL PLUG CONCRETE	700	CY	197.77	138,439
.329	PORTAL DOORS (ARCH.)	2	EA	29073.60	58,147
.33	DAM INSTRUMENTATION	1	LS	8419205.00	8,419,205
SUBTOTAL, PAGE 14					9,727,263
SUBTOTAL - ACCOUNT 332.3 MAIN DAM					800,962,223

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
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.4	RELICT CHANNEL	1	LS	58613000.00	58,613,000
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SUBTOTAL, PAGE 15				58,613,000	
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SUBTOTAL - ACCOUNT 332.4 RELICT CHANNEL				58,613,000	
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DATE JULY 9, 1984
FILE NO 1563-103
PROJECT WATANA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.5	OUTLET FACILITIES				
.512	TUNNEL - HORIZONTAL EXCAVATION - 31' DIA	2050	LF	3231.27	6,624,103
.51A	INCLINED SHAFT EXCAVATION 31' DIA	460	LF	3606.56	1,659,018
.51B	TUNNEL EXCAVATION - MANIFOLD	900	LF	1192.84	1,073,560
.514	CONCRETE LINING - HORIZONTAL 28' ID	1675	LF	3036.61	5,086,330
.51C	CONC. LINING -HORIZ., STEEL LINED 28' ID	375	LF	2256.43	846,163
.51D	CONCRETE LINING - MANIFOLD 8' ID	900	LF	1114.98	1,003,482
.51E	INCLINED LINING - SHAFT 28' ID	460	LF	3036.61	1,396,843
.51F	MECHANICAL - INLET	1	LS	5243220.00	5,243,220
SUBTOTAL, PAGE 16					22,932,719

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.51G	MECHANICAL - OUTLET	1	LS	16218650.00	16,218,650
SUBTOTAL, PAGE 17					16,218,650
SUOTOTAL - ACCOUNT 332.51 OUTLET FACILITIES					39,151,369

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.52	MAIN SPILLWAY, INCL CIVIL WORKS FOR OUTLET FACILITIES			
.521	COMMON EXC - APPROACH & CONTROL STRUCTURE	379000 CY	4.87	1,845,730
.522	COMMON EXC - CHUTE, FLIP BKT & OUTFALL	318300 CY	5.39	1,715,637
.52A	RIVER CHANNEL ALLUVIUM EXCAVATION	1060000 CY	6.37	6,752,200
.52B	ROCK EXCAVATION - APPROACH STRUCTURE	1096000 CY	14.28	15,650,880
.52C	ROCK EXCAVATION - CONTROL STRUCTURE	274000 CY	22.78	6,241,720
.52D	ROCK EXC - CHUTE & FLIP BUCKET	1592500 CY	17.47	27,820,975
.52F	BACKFILL	1 LS	62289.50	62,290
SUBTOTAL, PAGE 18				60,009,432

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.523	DRILL&GRT - CONSOL.	66000 LF	28.03	1,849,980
.524	SPILLWAY CONCRETE			
.52G	PIERS	40060 CY	304.91	12,214,695
.52H	DECK	350 CY	915.73	320,505
.52I	GUIDE WALLS	11510 CY	475.84	5,476,918
.52J	SLAB	30800 CY	538.62	16,589,496
.52K	OGEE	24800 CY	240.30	5,959,440
.52L	FLIP BUCKET & OUTLET DISCHARGE STRUCTURE	28300 CY	336.43	9,520,969
.52M	DRAIN GALRY AND AERATION GALLERY CONCRETE	3710 CY	711.95	2,641,334
.52P	GRAVITY RETAINING WALL & FLIP BUCKET	1000 CY	489.89	489,890

SUBTOTAL, PAGE 19

55,063,227

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.525	15' ROCKBOLTS	433	EA	197.77	85,634
.526	10' ROCKBOLTS	8100	EA	132.36	1,072,116
.520	HALF ROUNDS TO DRAINAGE GALLERY	15000	LF	15.57	233,550
.52N	SPILLWAY MECH&ELECT	1	LS	3498335.00	3,498,335
SUBTOTAL, PAGE 20					4,889,635
SUBTOTAL - ACCOUNT 332.52 MAIN SPILLWAY					120,042,294

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.6	POWER AND OUTLET INTAKE&APPROACH				
.611	COMMON EXCAVATION	423000	CY	5.39	2,279,970
.612	APPROACH - ROCK EXCAVATION	1695300	CY	14.28	24,208,884
.61B	INTAKE ROCK EXCAVATION	115300	CY	22.78	2,626,534
.614	CONCRETE	96400	CY	506.55	48,831,420
.615	1"X15' ROCKBOLTS	330	EA	197.77	65,264
.61C	INTAKE MECH&ELECT	1	LS	13672550.00	13,672,550
.61D	INTAKE BUILDING	1	LS	2002450.00	2,002,450
.61E	STRAND VSL ANCHORS INCLUDING INSTALL.	5000	LF	155.72	903,176
.61F	DRILLING 11" DIA HOLES AND GROUTING	5800	LF	23.36	135,488

SUBTOTAL, PAGE 21

94,725,736

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.62	INTAKE GATE	2 EA	590016.00	1,181,632
.63	BULKHEAD GATE	2 EA	123644.50	247,289
.64	CIRCULAR TRASHRACK	4 EA	206178.00	824,712
SUBTOTAL, PAGE 22				2,253,633
SUBTOTAL - ACCOUNT 332.6 POWER&OUTLET INTAKE				96,979,369

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HARZA-EBASCO JOINT VENTURE
 FEASIBILITY ESTIMATE
 (OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.711	ROCK EXCAVATION	102000	CY	84.09	8,577,180
.712	VENT SHAFT EXC 8.5 DIA	535	LF	2008.83	1,074,727
.714	CONCRETE 6.5 ID	90	LF	906.31	81,568
.715	SHOTCRETE 2 INCH	1	LS	31144.75	31,145
.716	SURGE CHAMBER CONC.	5100	CY	587.08	2,994,108
.717	DRAIN HOLES	15500	LF	31.14	482,670
.718	1"X10' ROCKBOLTS	400	EA	130.81	52,324
.71C	STOPLOGS, GUIDES AND FOLLOWERS STOPLOGS 40"W X44"H	1	LS	2052750.00	2,052,750
.8	PEDESTOCKS				
.811	EXC -SHAFT - 27'DIA	1800	LF	4544.02	8,179,236
SUBTOTAL, PAGE 23					23,525,708

Sept 1983
 Price Level

4,500 8,100,000 - 179,236

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

Sept, 1983
Price Level

8,100,000 179,236

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	U/P	Total Price
.81A	EXC -HORIZ- 27' DIA	1245	LF	2921.38	3,637,118	2300	2,863,500 - 773,618
.812	EXC - HORIZ - 21' DIA	690	LF	2089.81	1,441,972	1,700	1,173,000 - 268,972
.81D	EXC - HORIZ - 18' DIA	1200	LF	1756.57	2,107,078	1,500	1,800,000 - 307,878
.813	DRILL & GROUT-CONSOL	1	LS	357121.50	357,122		344,000 - 13,122
.814	PENSTOCK CONCRETE LINER-SHAFT-24'	1800	LF	5146.67	9,264,006	2,560	4,608,000 - 4,656,006
.81B	CONCRETE LINER LINER-HORIZ 24' ID	1245	LF	3036.61	3,780,586	1,700	2,116,500 - 1,664,086
.81C	CONCRETE LINER HORIZ 18' ID	690	LF	1952.78	1,347,415	1,420	979,800 - 367,615
.815	CONCRETE LINER HORIZONTAL - 15' ID	1200	LF	1627.31	1,952,778	1,250	1,500,000 - 452,778
.818	STEEL LINER	1020	TON	3893.10	7,085,433	4,550	8,281,000 + 1,195,567

SUBTOTAL, PAGE 24 30,974,300

SUBTOTAL - ACCOUNT.332.8 PENSTOCKS & SURGE CHAMBER 54,500,016

Penstocks (Only) 39,153,544

31,765,800 <-7,387,744> +19%

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.9	TAILRACE				
.911	TUNNEL EXC. - 37'	2080	LF	3332.49	6,931,579
.912	PORTAL COMMON EXC	4560	CY	5.67	25,855
.913	PORTAL ROCK EXC	31095	CY	21.96	682,846
.914	TAILRACE TUNNEL CONCRETE -34' ID	2000	LF	2740.74	5,700,739
.91A	PORTAL CONCRETE	300	CY	490.53	147,159
.915	PORTAL ROCKBOLTS 1"X25'	110	EA	330.13	36,314
.91C	TAILRACE STOPLOGS GUIDES & FOLLOWERS	1	LS	604519.50	604,520

SUBTOTAL, PAGE 25

14,129,012

SUBTOTAL - ACCOUNT 332.9 TAILRACE

14,129,012

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
333	WATERWHEELS, TURBINE & GENERATORS				
.10	GUARD VALVES	6 EA		1500000.00	9,000,000
.11	TURBINES & GOVERNORS	6 EA		4500000.00	27,000,000
.21	GENERATORS & EXCITERS	6 EA		5800000.00	34,800,000
SUBTOTAL, PAGE 26					70,800,000
SUBTOTAL - ACCOUNT 333 WATERWHEELS, TURBINES&GEN					70,800,000

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
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334	ACCESSORY ELECTRICAL EQUIPMENT	1	LS	21200000.00	21,200,000
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SUBTOTAL, PAGE 27				21,200,000	
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SUBTOTAL - ACCOUNT 334 ACCESSORY ELECTRICAL				21,200,000	
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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
335	MISC POWER PLNT EQUIP	1	LS	13800000.00	13,800,000
SUBTOTAL, PAGE 28					13,800,000
SUBTOTAL - ACCOUNT 335 MISC POWER PLANT EQ.					13,800,000

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
336	ROADS, RAIL & AIR FAC				
.11	PERM. ACCESS ROADS	1	LS	60929000.00	60,929,000
.12	SITE ROADS	23	MI	4871000.00	97,420,000
.13	PERMANENT ROADS	6	MILES	504000.00	3,024,000
.2	RAIL FACILITIES	1	LS	45481000.00	45,481,000
.3	AIRSTRIP	1	LS	7010000.00	7,010,000
SUBTOTAL, PAGE 29					213,864,000
SUBTOTAL - ACCOUNT 336 ROADS, RAIL FACILITIES					213,864,000

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
350-359	TRANSMISSION PLANT (DIVIDED INTO 10 UNITS FOR PROGRAM CONVENIENCE)	10	LS	39555800.00	395,558,000
SUBTOTAL, PAGE 30					395,558,000
SUBTOTAL - ACCOUNT 350-359 TRANSMISSION LINES					395,558,000

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
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350-359	TRANSMISSION PLANT (DIVIDED INTO 10 UNITS FOR PROGRAM CONVENIENCE)	10	LS	39555800.00	395,558,000
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SUBTOTAL, PAGE 30				395,558,000	
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SUBTOTAL - ACCOUNT 350-359 TRANSMISSION LINES				395,558,000	
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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
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399	GENERAL PLANT	1	LS	5092000.00	5,092,000
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SUBTOTAL, PAGE 31					5,092,000
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SUBTOTAL - ACCOUNT 399 GENERAL PLANT					5,092,000
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DATE JULY 9, 1984
FILE NO 1563-193
PROJECT WATANA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(O&B/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
(63)					
CONSTRUCT. FACILITIES					
.1-.5					
CONSTRUCTION CAMPS & PERMANENT VILLAGE (DIVIDED INTO 10 UNITS FOR PROGRAM CONVENIENCE)					
		10	LS	13080000.00	130,800,000
.6					
	CATERING & SUPPORT	2227336	MD	62.30	138,763,033
.7					
ELECTRIC POWER					
.71					
	34.5 KV SYSTEM	1	LS	2025000.00	2,025,000
.72					
	CAMP POWER	88000	MWH	140.00	12,320,000
.73					
	CONSTRUCTION POWER	68000	MWH	140.00	9,520,000
.8					
CONSTRUCTION HEATING & VENTILATING					
.81					
	PLANT	1	LS	1160000.00	1,160,000
SUBTOTAL, PAGE 32					
					294,588,033

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FILE NO 1563-103
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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.82	OPERATION	2700	DAYS	2600.00	7,236,000
SUBTOTAL, PAGE 33					7,236,000
SUBTOTAL - ACCOUNT (63) CONSTRUCTION CAMP					301,824,033

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
(68)	MITIGATION	1	LS	29200000.00	29,200,000
SUBTOTAL, PAGE 34					29,200,000
SUBTOTAL - ACCOUNT (68) MITIGATION					29,200,000
GRAND TOTALS					2,522,622,775

MARK UP FACTORS

PROJECT: WATANA - FERC APPLICATION
TYPE: MARK UP DERIVATION
DATE: JULY 9, 1984

NO. 1563-102
EST. BY RAM D/
& REV. OEB/L LEVY

HARZA-EBASCO JOINT VENTURE
MARK UP DERIVATION

MARK UP SUMMARY

A. INDIRECTS & ADMINISTRATIVE	271,220,000
B. MOBILIZATION & DEMOBILIZATION	17,770,000
C. INSURANCE	0
D. FINANCING COST	75,630,000
E. PROFIT	143,600,000

(1) TOTAL INDIRECT COSTS	508,220,000

(2) TOTAL DIRECT COST	2,014,372,859

(3) TOTAL PROJECT COSTS @ JAN. 1982 LEVEL	2,522,592,859 (*4)
(4) TOTAL- LAND & LAND RIGHTS, , MECHANICAL & ELECTRICAL , CONSTRUCTION CAMP & FACILITIES AND MITIGATION AT JANUARY 1982 LEVEL	1,102,339,033

$$\begin{aligned} \text{MARK UP FACTOR} &= \frac{(3) - (4)}{(2) - (4)} \\ &= \frac{2,522,592,859 - 1,102,339,033}{2,014,372,859 - 1,102,339,033} \\ &= \frac{1,420,253,826}{912,033,826} = 1.55723 \end{aligned}$$

- NOTES: (1) MECH & ELECT ITEMS INCLUDE INDIRECT COSTS AND PROFITS
(2) MOB & DEMOB OF AGGREGATE, CONCRETE BATCH & MIX AND DRYING
PLANTS INCLUDED IN THE DIRECT COST ITEMS.
(3) THE TOTAL PROJECT COST INDICATED ABOVE WOULD BE
SLIGHTLY DIFFERENT FROM THE GRAND TOTAL ON THE LAST PAGE OF
THE PRICE REPORT DUE TO ROUNDINGS OF THE UNIT COSTS.
* (4) THIS FIGURE IS SLIGHTLY DIFFERENT FROM THE TOTAL IN THE
PRICE REPORT DUE TO ROUNDING OF THE MARKUP FACTOR.

DIRECT COST REPORT

WATANA - FERC APPLICATION

FILE # 1563-103

FEASIBILITY LEVEL

(L LEVY, RAM D, OEB)

SUMMARY OF DIRECT COST ESTIMATE

JULY 10, 1984

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=====
ACCOUNT 330 LAND & LAND RIGHTS          51,000,000
ACCOUNT 331 POWERHOUSE                   44,603,706
ACCOUNT 332.1 RESERVOIR DAMS & TUNN.     30,062,500
ACCOUNT 332.2 DIVERSION TUNNELS          62,513,283
ACCOUNT 332.22 U/S COFFERDAM             11,704,370
ACCOUNT 332.23 D/S COFFERDAMS            1,727,243
ACCOUNT 332.3 MAIN DAM                   514,326,642
ACCOUNT 332.4 RELICT CHANNEL              37,639,100
ACCOUNT 332.51 OUTLET FACILITIES          25,141,535
ACCOUNT 332.52 MAIN SPILLWAY             77,089,134
ACCOUNT 332.6 POWER&OUTLET INTAKE        62,276,286
ACCOUNT 332.8 PENSTOCKS & SURGE CHAMBER   34,997,970
ACCOUNT 332.9 TAILRACE                    9,073,057
ACCOUNT 333 WATERWHEELS, TURBINES&GEN.   70,800,000
ACCOUNT 334 ACCESSORY ELECTRICAL         21,200,000
ACCOUNT 335 MISC POWER PLANT EQ.         13,800,000
ACCOUNT 336 ROADS & RAIL FACILITIES      213,064,000
ACCOUNT 350-359 TRANSMISSION LINES       395,558,000 ✓
ACCOUNT 399 GENERAL PLANT                 5,092,000
ACCOUNT (63) CONSTRUCTION CAMP           301,824,033
ACCOUNT (68) MITIGATION                   29,200,000
=====
GRAND TOTAL                             2,014,372,859
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NOTE: THE TRANSMISSION LINE COSTS ARE TAKEN FROM ACRES
1982 LEVEL ESTIMATE.

DATE JULY 9, 1984
FILE NO 1563-103
PROJECT WATANA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
A	SCHEME 2185B (FILL TYPE DAM)			
330	LAND & LAND RIGHTS	1 LS	51000000.00	51,000,000
SUBTOTAL, PAGE 1				51,000,000
SUBTOTAL - ACCOUNT 330 LAND & LAND RIGHTS				51,000,000

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
331.1	UNDERGROUND POWERHOUSE				
.11	POWERHOUSE & TAILRACE				
.111	EXCAVATION - ROCK	168000	CY	51.00	8,568,000
.113	DRILL & GROUT U/S OF PH	44730	LF	19.00	849,870
.114	CONCRETE	43500	CY	249.00	10,831,500
.117	DRAIN HOLES	44430	LF	15.00	666,450
.118	METALWORK	1	LS	1010235.00	1,010,235
.119	ARCHITECTURAL	1	LS	736500.00	736,500
.11C	MECHANICAL	1	LS	1132400.00	1,132,400
.12	ACCS. TUNLS&PORTALS				
.120	35'X28' EXC	2970	LF	2017.00	5,990,490

SUBTOTAL, PAGE 2

30,593,445

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.121	21'H X 25' W.H.S SURGE CH. ACCESS	180 LF	1853.00	333,540
.123	DRAINAGE GALLERY 10'X10' EXC	570 LF	707.00	402,990
.12A	ACCESS PORTAL & ROAD COM EXC	94420 CY	3.64	343,689
.12B	ACCESS PORTAL & ROAD ROCK EXC	71790 CY	14.00	1,005,060
.12C	VENTILATION GALLERY 14' H X 12' W H.S.	560 LF	850.00	476,000
.124	PORTALS CONCRETE	600 CY	274.00	164,400
.125	TUNNEL SLAB CONCRETE	1690 CY	204.00	344,760
.126	PENSTOCK ACCESS PLUG CONCRETE	7275 CY	127.00	923,925
.129	MAIN PORTAL DOORS	2 SETS	62912.00	125,824
SUBTOTAL, PAGE 3				4,120,180

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.13	ACCESS SHAFT				
.131	ROCK EXC 23' DIA	740	LF	2359.00	1,745,660
.134	CONCRETE LINING 20" ID	740	LF	1493.00	1,104,820
.138	MISC. METALWORK	50	TONS	2500.00	125,000
.13C	ELEVATORS	1	LS	595900.00	595,900
.14	FIRE PROTECTION HEADTANK	1	LS	302400.00	302,400
.15	BUS TUNNELS				
.151	EXC HORIZONTAL 22X22	156	LF	1846.00	287,976
.152	EXC INCLINED 16X16	282	LF	1532.00	432,024
.154	BUS TUNNEL SLAB CONC	350	CY	204.00	71,400
.16	TRANSFORMER GALLERY				
.161	EXCAVATION	26200	CY	54.72	1,433,664

SUBTOTAL, PAGE 4

6,098,844

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.164	CONCRETE SLAB	2180 CY	204.00	444,720
.167	DRAIN HOLES	8300 LF	15.00	124,500
.17	BUS SHAFTS			
.171	EXCAVATION 10.5 DIA	560 LF	1266.00	708,960
.174	CON. LINING 9.0 DIA	560 LF	806.00	451,360
.178	MISC. METALWORK	9 TONS	2500.00	22,500
.179	ENCLOSURES (ARCH.)	1 LS	28700.00	28,700
.170	MANHOIST	1 EA	131471.00	131,471
.18	CARE OF WATER	1 LS	334118.00	334,118
.19	INSTRUMENTATION	1 LS	429000.00	429,000
.2	MISC. BUILDINGS & STRUCTURES	1 LS	1115900.00	1,115,900
SUBTOTAL, PAGE 5				3,791,229
SUBTOTAL - ACCOUNT 331 POWERHOUSE				44,603,706

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
------	-------------	----------	------	--------------	---------------

332
RESERVOIRS, DAMS AND
WATERWAYS

.1	RESERVOIR CLEARING	37500	ACRES	823.00	30,862,500
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SUBTOTAL, PAGE 6 30,862,500

SUBTOTAL - ACCOUNT 332.1 RESERVOIR DAMS & TUNN. 30,862,500

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST

.2	DIVERSION TUNNELS				
.210	ACCESS TUNNEL TO GATE CHAMBER 15'X20'	2100	LF	1112.00	2,335,200
.211	DIVERSION TUNNEL EXCAVATION 39 FT DIA	7220	LF	2254.00	16,273,080
.21A	DIVERSION TUNNEL EXCAVATION 40 FT DIA	760	LF	2996.00	2,276,960
.21B	PORTALS - COM EXC	67100	CY	4.73	317,383
.21C	PORTALS - ROCK EXC	85550	CY	14.10	1,206,255
.21D	EMERGENCY RELEASE CHAMBERS ROCK EXC	4700	CY	63.14	296,758
.212	TEMPORARY COFFERDAM FILL FOR U/S PORTALS	34540	CY	3.04	105,002
.214	TUNNEL CONC. LINING- 36' ID	7220	LF	2107.00	15,212,540

SUBTOTAL, PAGE 7					38,023,978

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FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.21E	TUNNEL CONC. LINING- 45' ID	760	LF	2107.00	1,601,320
.215	PORTAL CONCRETE	18525	CY	171.00	3,167,775
.215A	MASS CONCRETE	200	CY	154.31	30,862
.216	FLIP BUCKET CONCRETE	2000	CY	170.79	341,580
.217	EMERGENCY RELEASE CHAMBER CONCRETE	15300	CY	250.00	3,825,000
.218	SUSPENDED METAL ROOF- EMERG. RELEASE CHMD	2775	SF	33.41	92,713
.219	LOWER DIVERSION TUNNEL PLUG CONCRETE	5570	CY	127.00	707,390
.21F	LOWER DIVERSION TUNNEL PLUG CONCRETE AT TAILRACE TUNNEL	8500	CY	127.00	1,079,500
.21G	DIV TUNNEL MECHANICAL	1	LS	13573000.00	13,573,000
SUBTOTAL, PAGE 8					24,419,140

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.21H	GRANULAR BACKFILL	8245	CY	8.51	70,165
SUBTOTAL, PAGE 9					70,165
SUBTOTAL - ACCOUNT 332.2 DIVERSION TUNNELS					62,513,203

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.22	U/S COFFERDAM				
.221	COMMON EXCAVATION	1000 CY		2.73	2,730
.222	IMPERVIOUS FILL	52000 CY		7.10	369,200
.223	ROCK & GRAVEL FILL	313000 CY		8.51	2,663,630
.224	FILTERS	33000 CY		0.51	200,030
.225	CUT-OFF WALL U/S	39000 SF		24.02	967,980
.226	CARE OF WATER	1 LS		7500000.00	7,500,000
SUBTOTAL, PAGE 10					11,704,370
SUDTOTAL - ACCOUNT 332.22 U/S COFFERDAM					11,704,370

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HARZA-EBASCO JOINT VENTURE
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(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.23	D/S COFFERDAM				
.231	COMMON EXCAVATION	5000	CY	2.73	13,650
.232	INTERVIOUS FILL	47250	CY	7.10	335,475
.233	ROCK & GRAVEL FILL	42000	CY	8.51	364,228
.235	CUTOFF WALL D/S	29500	SF	24.82	732,190
.236	REMOVAL OF COFFERDAM	90000	CY	3.13	281,700
SUBTOTAL, PAGE 11					1,727,243
SUBTOTAL - ACCOUNT 332.23 D/S COFFERDAMS					1,727,243

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(DEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.3	MAIN DAM			
.311	EXCAVATION - COMMON	4936000 CY	3.58	17,670,880
.312	EXCAVATION - ROCK	1214000 CY	12.34	14,980,760
.31A	IMPERVIOUS FILL	7877000 CY	7.10	55,926,700
.31B	PROVIDE DRYING FACILITIES FOR IMPERVIOUS FILL	1 LS	8529400.00	8,529,400
.31C	DRYING IMPERVIOUS FILL	1576000 CY	4.70	7,407,200
.31D	U/S GRAVEL & D/S SAND FILL	***** CY	8.51	175,527,260
.31E	FILTERS	6338000 CY	8.51	53,936,380
.31F	ROCKFILL FROM QUARRY ***** CY		7.26	134,770,284
.31G	ROCKFILL FROM STOCKPILE	2307000 CY	3.04	7,013,280

SUBTOTAL, PAGE 12

475,762,144

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.31H	ROCKFILL DIRECTLY FROM EXCAVATION	3924600 CY	0.50	1,962,300
.3H1	RAKING ROCKFILL	902000 CY	0.48	432,960
.313	DRILL&GROUT - CONSOL.	345000 LF	18.00	6,210,000
.311	DRILL&GROUT - CURTAIN	283450 LF	20.00	5,669,000
.314	DAM DENTAL CONCRETE	85000 CY	100.00	8,500,000
.317	DRAIN HOLES	136000 LF	15.00	2,040,000
.32	GROUT GALLRS&PORTALS			
.321	HORIZ. GALLRS 10X10	7450 LF	539.00	4,015,550
.322	INCLINED GALLERIES 10' X 10'	2580 LF	826.00	2,131,080
.323	SHAFTS 10X10	900 LF	1497.00	1,347,300
.32A	PORTALS - COMMON EXC	3600 CY	2.73	9,828
SUBTOTAL, PAGE 13				32,310,010

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.320	PORTALS - ROCK EXC	1000 CY	12.10	12,100
.324	TUNNEL CONCRETE SLABS	3410 CY	204.00	695,640
.325	PORTAL CONCRETE	20 CY	300.00	6,000
.326	TUNNEL PLUG CONCRETE	700 CY	127.00	88,900
.329	PORTAL DOORS (ARCH.)	2 EA	18670.00	37,340
.33	DAM INSTRUMENTATION	1 LS	5405500.00	5,406,500
SUBTOTAL, PAGE 14				6,246,480
SUBTOTAL - ACCOUNT 332.3 MAIN DAM				514,326,642

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
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.4	RELICT CHANNEL	1	LS	37639100.00	37,639,100
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SUBTOTAL, PAGE 15				37,639,100	
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SUBTOTAL - ACCOUNT 332.4 RELICT CHANNEL				37,639,100	
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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.5	OUTLET FACILITIES			
.512	TUNNEL - HORIZONTAL EXCAVATION - 31' DIA	2050 LF	2075.00	4,253,750
.51A	INCLINED SHAFT EXCAVATION 31' DIA	460 LF	2316.00	1,065,360
.51B	TUNNEL EXCAVATION - MANIFOLD	900 LF	766.00	689,400
.514	CONCRETE LINING - HORIZONTAL 28' ID	1675 LF	1950.00	3,266,250
.51C	CONC. LINING -HORIZ, STEEL LINED 28' ID	375 LF	1449.00	543,375
.51D	CONCRETE LINING - MANIFOLD 8' ID	900 LF	716.00	644,400
.51E	INCLINED LINING - SHAFT 20' ID	460 LF	1950.00	897,000
.51F	MECHANICAL - INLET	1 LS	3367000.00	3,367,000

SUBTOTAL, PAGE 16

14,726,535

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HARZA-EBASCO JOINT VENTURE
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(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.516	MECHANICAL - OUTLET	1	LS	10415000.00	10,415,000
SUBTOTAL, PAGE 17					10,415,000
SUBTOTAL - ACCOUNT 332.51 OUTLET FACILITIES					25,141,535

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.52	MAIN SPILLWAY, INCL CIVIL WORKS FOR OUTLET FACILITIES				
.521	COMMON EXC - APPROACH & CONTROL STRUCTURE	379000	CY	3.13	1,186,270
.522	COMMON EXC - CHUTE, FLIP BKT & OUTFALL	318300	CY	3.46	1,101,318
.52A	RIVER CHANNEL ALLUVIUM EXCAVATION	1060000	CY	4.09	4,335,400
.52B	ROCK EXCAVATION - APPROACH STRUCTURE	1096000	CY	9.17	10,050,320
.52C	ROCK EXCAVATION - CONTROL STRUCTURE	274000	CY	14.63	4,008,620
.52D	ROCK EXC - CHUTE & FLIP BUCKET	1592500	CY	11.22	17,067,050
.52F	BACKFILL	1	LS	40000.00	40,000

SUBTOTAL, PAGE 18

38,589,778

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.523	DRILL&GRT - CONSOL.	66000 LF	10.00	1,100,000
.524	SPILLWAY CONCRETE			
.52G	PIERS	40060 CY	195.00	7,843,740
.52H	DECK	350 CY	500.05	205,017
.52I	GUIDE WALLS	11510 CY	305.57	3,517,111
.52J	SLAB	30800 CY	345.00	10,653,104
.52K	OGEE	24800 CY	154.31	3,826,800
.52L	FLIP BUCKET & OUTLET DISCHARGE STRUCTURE	20300 CY	216.04	6,113,932
.52M	DRAIN GALRY AND AERATION GALLERY CONCRETE	3710 CY	457.19	1,696,175
.52P	GRAVITY RETAINING WALL & FLIP BUCKET	1000 CY	314.59	314,590

SUBTOTAL, PAGE 19

35,359,365

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.525	15' ROCKBOLTS	433	EA	127.00	54,991
.526	10' ROCKBOLTS	8100	EA	85.00	688,500
.528	HALF ROUNDS TO DRAINAGE GALLERY	15000	LF	10.00	150,000
.52H	SPILLWAY MECH&ELECT	1	LS	2246500.00	2,246,500
SUBTOTAL, PAGE 20					3,139,991
SUBTOTAL - ACCOUNT 332.52 MAIN SPILLWAY					77,089,134

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
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ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.6	POWER AND OUTLET INTAKE&APPROACH				
.611	COMMON EXCAVATION	423000	CY	3.46	1,463,580
.612	APPROACH - ROCK EXCAVATION	1695300	CY	9.17	15,545,901
.61D	INTAKE ROCK EXCAVATION	115300	CY	14.63	1,686,839
.614	CONCRETE	96400	CY	325.29	31,357,956
.615	1"X15' ROCKBOLTS	330	EA	127.00	41,910
.61C	INTAKE MECH&ELECT	1	LS	8780000.00	8,780,000
.61D	INTAKE BUILDING	1	LS	1285900.00	1,285,900
.61E	STRAND VSL ANCHORS INCLUDING INSTALL.	5800	LF	100.00	580,000
.61F	DRILLING 11" DIA HOLES AND GROUTING	5800	LF	15.00	87,000

SUBTOTAL, PAGE 21

60,829,086

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.62	INTAKE GATE	2	EA	379400.00	758,800
.63	BULKHEAD GATE	2	EA	79400.00	158,800
.64	CIRCULAR TRASHRACK	4	EA	132400.00	529,600
SUBTOTAL, PAGE 22					1,447,200
SUBTOTAL - ACCOUNT 332.6 POWER&OUTLET INTAKE					62,276,206

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.711	ROCK EXCAVATION	102000	CY	54.00	5,508,000
.712	VENT SHAFT EXC 8.5 DIA	535	LF	1290.00	690,150
.714	CONCRETE 6.5 ID	90	LF	582.00	52,380
.715	SHOTCRETE 2 INCH	1	LS	20000.00	20,000
.716	SURGE CHAMBER CONC.	5100	CY	377.00	1,922,700
.717	DRAIN HOLES	15500	LF	20.00	310,000
.718	1"X10" ROCKBOLTS	400	EA	84.00	33,600
.71C	STOPLOGS, GUIDES AND FOLLOWERS STOPLOGS 40'W X44'H	1	LS	1310200.00	1,310,200
.8	PENSTOCKS				
.811	EXC -SHAFT - 27'DIA	1800	LF	2910.00	5,252,400
SUBTOTAL, PAGE 23					15,107,430

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HARZA-EBASCO JOINT VENTURE
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(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.81A	EXC -HORIZ- 27' DIA	1245	LF	1876.00	2,335,620
.812	EXC - HORIZ - 21'DIA	690	LF	1342.00	925,980
.81B	EXC - HORIZ - 18'DIA	1200	LF	1128.00	1,353,600
.813	DRILL & GROUT-CONSOL	1	LS	229330.00	229,330
.814	PENSTOCK CONCRETE LINER-SHAFT-24'	1800	LF	3305.00	5,949,000
.81B	CONCRETE LINER LINER-HORIZ 24' ID	1245	LF	1950.00	2,427,750
.81C	CONCRETE LINER HORIZ 18' ID	690	LF	1254.00	865,260
.815	CONCRETE LINER HORIZONTAL - 15' ID	1200	LF	1045.00	1,254,000
.810	STEEL LINER	1820	TON	2500.00	4,550,000

SUBTOTAL, PAGE 24 19,890,540

SUDTOTAL - ACCOUNT 332.8 PENSTOCKS & SURGE CHAMBER 34,997,970

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(DEB/RAM D)

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.9	TAILRACE			
.911	TUNNEL EXC. - 37'	2080 LF	2140.00	4,451,200
.912	PORTAL COMMON EXC	4560 CY	3.64	16,598
.913	PORTAL ROCK EXC	31095 CY	14.10	438,439
.914	TAILRACE TUNNEL CONCRETE -34' ID	2080 LF	1760.00	3,660,800
.91A	PORTAL CONCRETE	300 CY	315.00	94,500
.915	PORTAL ROCKBOLTS 1"X25'	110 EA	212.00	23,320
.91C	TAILRACE STOPLOGS GUIDES & FOLLOWERS	1 LS	388200.00	388,200
SUBTOTAL, PAGE 25				9,073,057
SUBTOTAL - ACCOUNT 332.9 TAILRACE				9,073,057

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
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333
WATERWHEELS, TURBINE
& GENERATORS

.10	GUARD VALVES	6	EA	1500000.00	9,000,000
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.11	TURBINES & GOVERNORS	6	EA	4500000.00	27,000,000
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.21	GENERATORS & EXCITERS	6	EA	5800000.00	34,800,000
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SUBTOTAL, PAGE 26				70,800,000	
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SUBTOTAL - ACCOUNT 333 WATERWHEELS, TURBINES & GEN..				70,000,000	
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FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
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334	ACCESSORY ELECTRICAL EQUIPMENT	1	LS	21200000.00	21,200,000
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SUBTOTAL, PAGE 27					21,200,000
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SUBTOTAL - ACCOUNT 334 ACCESSORY ELECTRICAL					21,200,000
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FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
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335	MISC POWER PLNT EQUIP	1	LS	13800000.00	13,800,000
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SUBTOTAL, PAGE 28				13,800,000	
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SUBTOTAL - ACCOUNT 335 MISC POWER PLANT EQ.				13,800,000	
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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
336	ROADS, RAIL & AIR FAC				
.11	PERM. ACCESS ROADS	1	LS	60929000.00	60,929,000
.12	SITE ROADS	20	MI	4871000.00	97,420,000
.13	PERMANENT ROADS	6	MILES	504000.00	3,024,000
.2	RAIL FACILITIES	1	LS	45481000.00	45,481,000
.3	AIRSTRIP	1	LS	7010000.00	7,010,000
SUBTOTAL, PAGE 29					213,864,000
SUBTOTAL - ACCOUNT 336 ROADS & RAIL FACILITIES					213,864,000

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
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350-359	TRANSMISSION PLANT (DIVIDED INTO 10 UNITS FOR PROGRAM CONVENIENCE)	10	LS	39555800.00	395,558,000
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SUBTOTAL, PAGE 30					395,558,000
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SUBTOTAL - ACCOUNT 350-359 TRANSMISSION LINES					395,550,000
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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(DEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
399	GENERAL PLANT	1	LS	5092000.00	5,092,000
SUBTOTAL, PAGE 31					5,092,000
SUOTOTAL - ACCOUNT 399 GENERAL PLANT					5,092,000

DATE JULY 9, 1984
FILE NO 1563-103
PROJECT WATANA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
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(63)
CONSTRUCT. FACILITIES

.1-.5	CONSTRUCTION CAMPS & PERMANENT VILLAGE (DIVIDED INTO 10 UNITS FOR PROGRAM CONVENIENCE)	10	LS	13080000.00	130,800,000
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.6	CATERING & SUPPORT	2227336	MD	62.30	130,763,033
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.7
ELECTRIC POWER

.71	34.5 KV SYSTEM	1	LS	2025000.00	2,025,000
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.72	CAMP POWER	88000	MWH	140.00	12,320,000
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.73	CONSTRUCTION POWER	68000	MWH	140.00	9,520,000
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.8
CONSTRUCTION HEATING
& VENTILATING

.81	PLANT	1	LS	1160000.00	1,160,000
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SUBTOTAL, PAGE 32

294,580,033

DATE JULY 9, 1984
FILE NO 1563-103
PROJECT WATANA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
.02	OPERATION	2700 DAYS	2600.00	7,236,000
SUBTOTAL, PAGE 33				7,236,000
SUBTOTAL - ACCOUNT (63) CONSTRUCTION CAMP				301,024,033

DATE JULY 9, 1984
FILE NO 1553-103
PROJECT WATANA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
(68)	MITIGATION	1	LS	29200000.00	29,200,000
SUBTOTAL, PAGE 34					29,200,000
SUBTOTAL - ACCOUNT (68) MITIGATION*					29,200,000
GRAND TOTALS					2,014,372,859

INDIRECT COST REPORT

WATANA - FERC APPLICATION

FILE # 1563-103

FEASIBILITY LEVEL ESTIMATE

(L. LEVY, RAM D, OEB)

INDIRECT COST SUMMARY

MARCH 26, 1984

CONTRACT # 1 DIVERSION TUNNEL & FACILITIES	16,560,400
CONTRACT # 2 MAIN DAM EXCAVATION & GROUTING	17,351,750
CONTRACT # 3 FDN TREATMENT, COFFERDAMS	24,922,500
CONTRACT # 4 SPILLWAY EXC, FND TREATMENT, DRAINAGE GAL	20,883,250
CONTRACT # 5 OUTLET FAC, POWER INTAKE TUNNEL EXC & CONC	25,465,300
CONTRACT # 6 POWER FACILITIES EXCAVATION & CONCRETE	41,291,900
CONTRACT # 7 MAIN DAM EMBANKMENT & RELICT CHANNEL	36,753,200
CONTRACT # 8 AGGREGATE & CONCRETE SUPPLY	7,190,900
CONTRACT # 9 SPILLWAY CONCRETE	16,116,900
CONTRACT # 10 GATES & HOISTS	4,091,280
OTHER INDIRECT COSTS-AMBULANCE, SNOW REM, HAUL ROADS ETC	60,590,150

TOTAL INDIRECT COSTS	271,217,530

NOTES: (1) THE TOTAL INDIRECT COSTS WERE ROUNDED TO
\$ 271,220,000 IN THE DEVELOPMENT OF THE
MARK UP FACTOR.

(2) FULL ELECTRONIC CALCULATOR ACCURACY WAS USED
IN DEVELOPING UNIT COSTS AND QUANTITIES, SO
THAT INTERMEDIATE NUMBERS PRESENTED DO NOT
NECESSARILY EXACTLY EQUAL THE NUMBER USED
TO COMPUTE A RESULT. (E.G. $3.14 \times 10000 = 31,415$
BECAUSE "PI" RATHER THAN 3.14 IS USED, ETC)

(3) INDIRECT COST FINAL EXTENSIONS ARE IN GENERAL
ROUNDED TO 4 SIGNIFICANT DIGITS.

PROJECT: SUSITNA - WATANA

DATE: MARCH 1, 1984

NO. #1563X103
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

C O N T R A C T S

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	TOTALS
A. PERSONNEL -											
(1) ADMINISTRATIVE	750,000	777,000	996,000	914,500	950,000	1,292,000	2,245,000	450,000	675,000	133,000	9,182,500
(2) SUPERVISORY	3,136,700	3,920,500	6,915,800	4,672,100	7,634,000	13,620,000	9,036,000	2,143,800	3,106,800	735,500	54,921,200
(3) ENGINEERING	2,321,000	2,113,500	3,632,500	2,944,000	3,053,000	6,511,000	4,682,000	162,000	2,206,000	416,500	28,041,500
(4) OFFICE	1,102,500	1,344,500	1,582,500	1,346,500	1,510,000	2,620,000	2,227,500	252,000	1,148,000	77,000	13,210,500
(5) PURCHASING	487,500	446,500	541,000	488,500	689,000	968,000	813,000	0	333,500	52,500	4,819,500
(6) WAREHOUSING	639,000	660,500	862,500	703,000	875,500	1,764,000	1,249,500	198,000	850,500	101,500	7,904,000
B. VEHICLES	1,676,100	1,330,250	1,883,800	1,617,850	2,210,300	3,723,100	3,313,900	426,600	1,580,700	231,880	17,994,480
C. TRAVEL AND ALLOWANCES	700,000	646,000	676,000	676,000	836,000	1,209,000	1,582,000	106,500	690,000	33,000	7,154,500
D. MISCELLANEOUS & MAINTENANCE EXPENSES	3,057,600	2,912,000	3,964,900	3,653,300	3,647,500	6,179,800	7,199,300	1,442,000	2,431,400	440,400	34,928,200
E. GENERAL PLANT	2,690,000	3,201,000	3,867,500	3,867,500	4,060,000	3,405,000	4,406,000	2,010,000	3,095,000	1,870,000	32,471,000
GRAND TOTAL	16,560,400	17,351,750	24,922,500	20,883,250	25,465,300	41,291,900	36,753,200	7,190,900	16,116,900	4,091,280	210,627,380

* (Insurance, Taxes and Bond will be provided for all 10 contracts together)

1

PROJECT: SUSTAIN - WITHANA
SUBJECT: VERSION TUNNEL AND FACILITIES (CONTRACT #1)
DATE: FEBRUARY 28, 1984

NO. 1563X103
ES BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	750,000
A.2 PERSONNEL - SUPERVISORY	3,136,700
A.3 PERSONNEL - ENGINEERING	2,321,000
A.4 PERSONNEL - OFFICE	1,102,500
A.5 PERSONNEL - PURCHASING	407,500
A.6 PERSONNEL - WAREHOUSING	639,000
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	1,676,100
C. TRAVEL AND ALLOWANCES	700,000
D. MISC & MAINTENANCE EXPENSES	3,057,600
E. GENERAL PLANT	2,690,000
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	16,560,400

JEC ISI - ()
SUBJECT: VERSION TUNNEL AND FACILITIES (CONTRACT #1)
DATE: FEBRUARY 20, 1984

NO 63
EST BY UED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 30. MO @	10000.	300,000
GENERAL SUPERINTENDENT	1.0 X 30. MO @	9000.	270,000
SECRETARY	1.0 X 30. MO @	2500.	75,000
DRIVER	1.0 X 30. MO @	3500.	105,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 750,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - DRILL&BLAST	2.0 X 27. MO @	8500.	459,000
SUPERINTENDENT - CONCRETE	2.0 X 12. MO @	8500.	204,000
SUPERINTENDENT - ELECTRICAL	2.0 X 27. MO @	8500.	459,000
SUPERINTENDENT - MECHANICAL	1.0 X 27. MO @	8500.	229,500
MASTER MECHANIC	1.0 X 30. MO @	8500.	255,000
SERVICE TRUCK DRIVER	1.0 X 27. MO @	6000.	162,000
TRUCK CRANE OPERATOR	2.0 X 27. MO @	5300.	286,200
" " OILER	2.0 X 27. MO @	8000.	432,000
BUS DRIVERS	4.0 X 27. MO @	6000.	650,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 3,136,700

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 30. MO @	9000.	270,000
FIELD ENGINEER	1.0 X 27. MO @	6500.	175,500
COST ENGINEER	1.0 X 30. MO @	6500.	195,000
PLANT ENGINEER	1.0 X 10. MO @	6500.	65,000
DRAFTSMAN	2.0 X 27. MO @	4000.	216,000
REPRODUCTION	1.0 X 30. MO @	3000.	90,000
PARTY CHIEF	2.0 X 27. MO @	6500.	351,000
INSTRUMENTMAN	2.0 X 27. MO @	6000.	324,000
ROD AND CHAIN MAN	4.0 X 27. MO @	5000.	540,000
DRIVER	1.0 X 27. MO @	3500.	94,500

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 2,321,000

PROJECT: SUSI - WATMAN
SUBJECT: VERSION TUNNEL AND FACILITIES (CONTRACT #1)
DATE: FEBRUARY 28, 1984

NO. 1563, 100
ES BY OED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 30. MO @	6000.	180,000
ACCOUNTANTS	1.0 X 30. MO @	3500.	105,000
TIMEKEEPERS	2.0 X 27. MO @	2500.	135,000
PAYROLL CLERK	1.0 X 27. MO @	2500.	67,500
CLERKS	2.0 X 27. MO @	2500.	135,000
SWITCHBOARD RECEPTIONIST	1.0 X 30. MO @	3000.	90,000
JANITORS	2.0 X 30. MO @	3000.	180,000
COMPUTER SERVICE GROUP	2.0 X 30. MO @	3500.	210,000

SUBTOTAL - A.4 PERSONNEL - OFFICE 1,102,500

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 30. MO @	8000.	240,000
CLERKS	1.0 X 27. MO @	2500.	67,500
PORT AGENT	1.0 X 10. MO @	3500.	35,000
CLERK	1.0 X 10. MO @	2500.	25,000
TEAMSTER	1.0 X 30. MO @	4000.	120,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING 407,500

PROJECT: SUSI - WATKINS
 SUBJECT: VERSION TUNNEL AND FACILITIES (CONTRACT #1)
 DATE: FEBRUARY 28, 1984

NO. 5563.215
 ES BY DEB
 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 30. MO @	6000.	180,000
RECEIVING CLERK	1.0 X 20. MO @	2500.	50,000
RECORDS CLERK	2.0 X 20. MO @	2500.	100,000
TEAMSTER	1.0 X 30. MO @	4000.	120,000
FORK LIFT OPERATOR	2.0 X 27. MO @	3500.	189,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 639,000

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

PROJECT: SUSITNA - WATANA
SUBJECT: VERSION TUNNEL AND FACILITIES (CONTRACT #1)
DATE: FEBRUARY 28, 1984

NO. #1563X103
ES BY JEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	3.0 X 30. MOS @	600.	54,000
AUTOS	1.0 X 20. MOS @	600.	12,000
PICK UPS	10.0 X 30. MOS @	600.	180,000
PICK UPS	12.0 X 27. MOS @	600.	194,400
PICK UPS	4.0 X 12. MOS @	600.	28,800
PICK UPS	3.0 X 10. MOS @	600.	18,000
FLATBEDS	3.0 X 30. MOS @	600.	54,000
SERVICE TRUCKS	1.0 X 27. MOS @	800.	21,600
FORK LIFTS	1.0 X 27. MOS @	1000.	27,000
TRUCK CRANES	1.0 X 27. MOS @	15000.	405,000
BUSES	3.0 X 27. MOS @	7000.	630,000
VANS	2.0 X 27. MOS @	800.	43,200
LICENSE FEES & PERMITS	45.0 X 3. YRS @	60.	8,100

SUBTOTAL - B. VEHICLES 1,676,100

C. TRAVEL AND ALLOWANCES

OF CONTRACTS = 27/18 = 2

TRAVEL TO JOB			
MARRIED (2 X 3)	16.0 X 3. TRP @	2000.	96,000
SINGLE (2 X 6)	12.0 X 1. TRP @	2000.	24,000
SHIPMENT OF PERSONAL GOODS			
MARRIED	16. EA @	15000.	240,000
SINGLE	12. EA @	8000.	96,000
TRAVEL EXPENSE-JOB CONNECTED			
LOCAL TRAVEL	27. MOS @	2000.	54,000
VACATION TRAVEL			
MARRIED	16.0 X 3. TRP @	2000.	96,000
SINGLE	12.0 X 1. TRP @	2000.	24,000
SUBSISTENCE - MEN	20.0 X 1. MOS @	1500.	42,000
TURN OVER FACTOR (10 %)	2. MEN @	30000.	60,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 700,000

PROJECT: BUSI. ...
SUBJECT: TUNNEL AND FACILITIES (CONTRACT #1)
DATE: FEBRUARY 28, 1984

NO. 3637
BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES & MAINTENANCE

OFFICE SUPPLIES	30. MOS @	500.	15,000
OFFICE RENT (INCL TEMPORARY)	30. MOS @	2500.	75,000
OFFICE EQUIPMENT	30. MOS @	1500.	45,000
ENGINEERING SUPPLIES	27. MOS @	1000.	27,000
ENGINEERING EQUIPMENT-RENTAL	27. MOS @	3000.	81,000
PHOTOS AND REPRODUCTIONS	27. MOS @	1000.	27,000
OUTSIDE ENGINEERING EXPENSE	1. LS	50000.	50,000
CONSULTANT EXPENSE	1. LS	100000.	100,000
WAREHOUSE & PURCHASE AIR	27. MOS @	12000.	324,000
LABOR RELATED SUPPLIES	27. MOS @	1000.	27,000
SAFETY & FIRST AID SUPPLIES	27. MOS @	11000.	297,000
BUILDING MAINTENANCE	30. MOS @	6000.	180,000
TELEPHONE & TELEX	27. MOS @	4500.	121,500
UTILITIES & JANITORIAL SERVICES	30. MOS @	10000.	300,000
SANITARY FACILITIES	30. MOS @	3000.	90,000
WATER SERVICES	30. MOS @	2000.	60,000
DRINKING WATER AND ICE	30. MOS @	2000.	60,000
RADIO COMMUNICATIONS	30. MOS @	7500.	225,000
LEGAL EXPENSE	1. LS	100000.	100,000
AUDITS	1. LS	100000.	100,000
HOME OFFICE TRAVEL-TO JOBSITE	27. TRP @	4000.	108,000
ENTERTAINMENT, DONR & CONTRIB.	27. MOS @	1000.	27,000
DUES, FEES, ADVERTISING & SUBS.	27. MOS @	100.	2,700
TEST MATERIALS	1. LS	10000.	10,000
FIRE PROTECTION	1. LS	25000.	25,000
PERMITS	1. LS	5000.	5,000
POSTAGE	27. MOS @	200.	5,400
WINTER OVER EXPENSE	6. EN	60000.	360,000
COMPUTER SERVICES	30. EA	7000.	210,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES

3,057,500

PROJECT: SUSIINH - WATHAH
SUBJECT: VERSION TUNNEL AND FACILITIES (CONTRACT #1)
DATE: FEBRUARY 28, 1984

NO. #1553X103
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES (30 MEN X 150 SF/EA @ 70/SF)	1. LS	315000.	315,000
WAREHOUSE (6000 SF @ \$ 50/SF)	1. LS	300000.	300,000
GENERAL YARD AND SITE GRADING 200' X 300' @ \$ 5.00	1. LS	300000.	300,000
HOSPITAL OR FIRST AID TRAILER	1. LS	30000.	30,000
INSPECTOR FIELD OFFICES	2. EA	30000.	60,000
CONCRETE TESTING FACILITIES	1. LS	50000.	50,000
SHOWER AND LOCKERROOMS	1. LS	35000.	35,000
CHANGE HOUSE	1. LS	50000.	50,000
WORKMENS SHELTERS	2. EA	10000.	20,000
TOOL SHEDS	1. LS	10000.	10,000
CARPENTERS SHOP	1. LS	120000.	120,000
ELECTRICAL REPAIR SHOP	1. LS	50000.	50,000
PIPEFITTERS SHOP & PLUMBERS	1. LS	20000.	20,000
WELDING AND BLACKSMITH SHOP	1. LS	50000.	50,000
MECHANIC SHOP	1. LS	50000.	50,000
TIRE REPAIR	1. LS	30000.	30,000
LIGHT&POWER INST&REM	1. LS	200000.	200,000
TELEPHONE INST&REM	1. LS	50000.	50,000
WATER SYSTEM INST&REM	1. LS	250000.	250,000
HEAT SYSTEM INST&REM	1. LS	500000.	500,000
SANITARY SYSTEM INST&REM	1. LS	100000.	100,000
FIRE PROTECTION	1. LS	50000.	50,000
RADIO COMMUNICATION	1. LS	50000.	50,000

SUSTOTAL - E. GENERAL PLANT

2,690,000

PROJECT: 5511... WA...
SUBJECT: REVERSION TUNNEL AND FACILITIES (CONTRACT #1)
DATE: FEBRUARY 28, 1984

NO. 63X
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

F. INSURANCE AND TAXES

INSURANCE - MAJOR EQUIPMENT
MINOR EQUIPMENT
BUILDERS RISK
TAXES - COUNTY TAX ON PLANT
STATE BUSINESS
CITY BUSINESS
MAJOR EQUIPMENT LICENSE FEES
UNITS

SUBTOTAL - F. INSURANCE AND TAXES 0

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @	1.0	% OF	0.	0
NEXT \$2,400,000 @	0.0	% OF	0.	0
NEXT \$2,500,000 @	0.6	% OF	0.	0
OVER \$5,000,000 @	0.5	% OF	0.	0
FIX VALUE	1.FIX		0.	0

SUBTOTAL - G. BONDS 0

GRAND TOTAL - INDIRECT COSTS 16,560,400

2

PROJECT: SUSITNA - WATANA
SUBJECT: III DAM EXCAVATION & CROUTING (CONTRACT #2)
DATE: FEBRUARY 20, 1964

NO. 51563A103
EC BY OEG
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	777,000
A.2 PERSONNEL - SUPERVISORY	3,920,500
A.3 PERSONNEL - ENGINEERING	2,113,500
A.4 PERSONNEL - OFFICE	1,344,500
A.5 PERSONNEL - PURCHASING	446,500
A.6 PERSONNEL - WAREHOUSING	660,500
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	1,330,250
C. TRAVEL AND ALLOWANCES	646,000
D. MISC & MAINTENANCE EXPENSES	2,912,000
E. GENERAL PLANT	3,201,000
F. INSURANCE AND TAXES	0
G. BONDS	0
GRAND TOTAL INDIRECT COSTS	17,351,750

PROJECT: DAM EXCAVATION & GROUTING (CONTRACT #2)
SUBJECT: III DAM EXCAVATION & GROUTING (CONTRACT #2)
DATE: FEBRUARY 20, 1994

NO. 53853
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 33. MO @	10000.	330,000
GENERAL SUPERINTENDENT	1.0 X 33. MO @	9000.	297,000
SECRETARY	1.0 X 25. MO @	2500.	62,500
DRIVER	1.0 X 25. MO @	3500.	87,500

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 777,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - EXCAVATION	2.0 X 25. MO @	8500.	425,000
SUPERINTENDENT - DRILL&BLAST	2.0 X 25. MO @	8500.	425,000
SUPERINTENDENT - GROUTING	2.0 X 25. MO @	8500.	425,000
SUPERINTENDENT - ELECTRICAL	2.0 X 25. MO @	8500.	425,000
SUPERINTENDENT - MECHANICAL	1.0 X 25. MO @	8500.	212,500
MASTER MECHANIC	1.0 X 33. MO @	8500.	280,500
SERVICE TRUCK DRIVER	2.0 X 25. MO @	6000.	300,000
TRUCK CRANE OPERATOR	2.0 X 25. MO @	5300.	265,000
" " LILER	2.0 X 25. MO @	8000.	400,000
BUS DRIVERS	4.0 X 25. MO @	6000.	600,000
LOW BOY DRIVERS	1.0 X 25. MO @	6500.	162,500

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 3,920,500

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 33. MO @	9000.	297,000
FIELD ENGINEER	1.0 X 33. MO @	6500.	214,500
COST ENGINEER	1.0 X 33. MO @	6500.	214,500
DRAFTSMAN	1.0 X 25. MO @	4000.	100,000
REPRODUCTION	1.0 X 25. MO @	3000.	75,000
PARTY CHIEF	2.0 X 25. MO @	6500.	325,000
INSTRUMENTMAN	2.0 X 25. MO @	6000.	300,000
ROD AND CHAIN MAN	4.0 X 25. MO @	5000.	500,000
DRIVER	1.0 X 25. MO @	3500.	87,500

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 2,113,500

PROJECT: 305: IN DAM EXCAVATION & GROUTING (CONTRACT #2) NO. 37A
DATE: FEBRUARY 20, 1984 ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 33. MO @	6000.	198,000
ACCOUNTANTS	1.0 X 33. MO @	3500.	115,500
PERSONNEL MANAGER	1.0 X 33. MO @	3500.	115,500
TIMEKEEPERS	2.0 X 25. MO @	2500.	125,000
PAYMASTER	1.0 X 25. MO @	2500.	62,500
CLERKS	2.0 X 25. MO @	2500.	125,000
STENOGRAPHERS	1.0 X 25. MO @	3000.	75,000
SWITCHBOARD RECEPTIONIST	1.0 X 33. MO @	3000.	99,000
JANITORS	2.0 X 33. MO @	3000.	190,000
COMPUTER SERVICE GROUP	2.0 X 33. MO @	3500.	231,000

SUBTOTAL - A.4 PERSONNEL - OFFICE 1,344,500

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 33. MO @	8000.	264,000
CLERKS	1.0 X 33. MO @	2500.	82,500
PORT AGENT	1.0 X 10. MO @	3500.	35,000
CLERK	1.0 X 10. MO @	2500.	25,000
TEAMSTER	1.0 X 10. MO @	4000.	40,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING 446,500

PROJECT: SUSITNA - WATANA
SUBJECT: III DAM EXCAVATION & GROUTING (CONTRACT #2)
DATE: FEBRUARY 28, 1984

NO. 1563X183
ES BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 33. MO @	6000.	198,000
RECEIVING CLERK	2.0 X 25. MO @	2500.	125,000
RECORDS CLERK	1.0 X 25. MO @	2500.	62,500
TEAMSTER	1.0 X 25. MO @	4000.	100,000
FORK LIFT OPERATOR	2.0 X 25. MO @	3500.	175,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 660,500

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

PROJECT: SI. U. NO. 53.
SUBJECT: IN DAM EXCAVATION & GROUTING (CONTRACT #2)
DATE: FEBRUARY 28, 1984

ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	1.0 X 33. MOS @	600.	19,800
AUTOS	1.0 X 10. MOS @	600.	6,000
PICK UPS	9.0 X 33. MOS @	600.	178,200
PICK UPS	14.0 X 25. MOS @	600.	210,000
FLATBEDS	2.0 X 33. MOS @	600.	39,600
SERVICE TRUCKS	1.0 X 25. MOS @	800.	20,000
LIMBOYS	1.0 X 25. MOS @	800.	20,000
FORK LIFTS	1.0 X 25. MOS @	1000.	25,000
TRUCK CRANES	1.0 X 25. MOS @	15000.	375,000
BUSES	2.0 X 25. MOS @	7800.	390,000
VANS	2.0 X 25. MOS @	800.	40,000
LICENSE FEES & PERMITS	37.0 X 3. YRS @	60.	6,650

SUBTOTAL - B. VEHICLES 1,330,250

C. TRAVEL AND ALLOWANCES

* OF CONTRACTS = 30/18 = 2

TRAVEL TO JOB

MARRIED (2 X 8)	16.0 X 3. TRP @	2000.	96,000
SINGLE (2 X 6)	12.0 X 1. TRP @	2000.	24,000

SHIPMENT OF PERSONAL GOODS

MARRIED	16. EA @	15000.	240,000
SINGLE	12. EA @	8000.	96,000

TRAVEL EXPENSE-JOB CONNECTED

MARRIED	16.0 X 3. TRP @	2000.	96,000
SINGLE	12.0 X 1. TRP @	2000.	24,000

SUBSISTENCE - MEN	28.0 X 1. MOS @	1500.	42,000
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TURN OVER FACTOR (10 %)	2. MEN @	30000.	60,000
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SUBTOTAL - C. TRAVEL AND ALLOWANCES 646,000

PROJECT: SUS. DAM - WITTANA
SUBJECT: III DAM EXCAVATION & GROUTING (CONTRACT #2)
DATE: FEBRUARY 28, 1984

NO. 55063.123
ES BY OED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES & MAINTENANCE

OFFICE SUPPLIES	33. MOS @	500.	16,500
OFFICE RENT (INCL TEMPORARY)	33. MOS @	2500.	62,500
OFFICE EQUIPMENT	33. MOS @	1500.	49,500
ENGINEERING SUPPLIES	25. MOS @	1000.	25,000
ENGINEERING EQUIPMENT-RENTAL	25. MOS @	3000.	75,000
PHOTOS AND REPRODUCTIONS	25. MOS @	1000.	25,000
OUTSIDE ENGINEERING EXPENSE	1. LS	50000.	50,000
CONSULTANT EXPENSE	1. LS	50000.	50,000
WAREHOUSE & PURCHASE AIR	25. MOS @	12000.	300,000
LABOR RELATED SUPPLIES	25. MOS @	1000.	25,000
SAFETY & FIRST AID SUPPLIES	25. MOS @	11000.	275,000
BUILDING MAINTENANCE	33. MOS @	6000.	198,000
TELEPHONE & TELEX	33. MOS @	4500.	143,500
UTILITIES & JANITORIAL SERVICES	33. MOS @	10000.	330,000
SANITARY FACILITIES	33. MOS @	3000.	99,000
WATER SERVICES	33. MOS @	2000.	66,000
DRINKING WATER AND ICE	33. MOS @	2000.	66,000
RADIO COMMUNICATIONS	33. MOS @	7500.	247,500
LEGAL EXPENSE	1. LS	10000.	10,000
AUDITS	1. LS	10000.	10,000
HOME OFFICE TRAVEL-TO JOBSITE	25. TRP @	4000.	100,000
ENTERTAINMENT, DONA & CONTRIB.	25. MOS @	1000.	25,000
DUES, FEES, ADVERTISING & SUDS.	25. MOS @	100.	2,500
TEST MATERIALS	1. LS	10000.	10,000
FIRE PROTECTION	1. LS	25000.	25,000
PERMITS	1. LS	5000.	5,000
POSTAGE	25. MOS @	200.	5,000
WINTER OVER EXPENSE	6. EA	60000.	360,000
COMPUTER SERVICES	33. EA	7000.	231,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES

2,912,000

PROJECT: SUSI DAM - WITHIN
SUBJECT: III DAM EXCAVATION & GROUTING (CONTRACT #2)
DATE: FEBRUARY 28, 1984

NO. 1553.155
ES BY DED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES (32 MEN X 150 SF/EA @ 70/SF)	1. LS	336000.	336,000
WAREHOUSE (6000 SF @ \$ 50/SF)	1. LS	300000.	300,000
GENERAL YARD AND SITE GRADING	1. LS	500000.	500,000
HOSPITAL OR FIRST AID TRAILER	1. LS	30000.	30,000
INSPECTOR FIELD OFFICE	2. EA	30000.	60,000
FIELD OFFICES	2. EA	30000.	60,000
SHOWER AND LOCKERROOMS	1. LS	35000.	35,000
CHANGE HOUSE	1. LS	50000.	50,000
WORKMENS SHELTERS	2. EA	10000.	20,000
TOOL SHEDS	1. LS	10000.	10,000
WELDING AND BLACKSMITH SHOP	1. LS	50000.	50,000
MECHANIC SHOP	1. LS	450000.	450,000
TIRE REPAIR	1. LS	100000.	100,000
LIGHT&POWER INST&REM	1. LS	200000.	200,000
TELEPHONE INST&REM	1. LS	50000.	50,000
WATER SYSTEM INST&REM	1. LS	250000.	250,000
HEAT SYSTEM INST&REM	1. LS	500000.	500,000
SANITARY SYSTEM INST&REM	1. LS	100000.	100,000
FIRE PROTECTION	1. LS	50000.	50,000
RADIO COMMUNICATION	1. LS	50000.	50,000

SUSTOTAL - E. GENERAL PLANT

3,201,000

PROJECT: SUSITNA - WATANA
SUBJECT: 1111 DAM EXCAVATION & GROUTING (CONTRACT #2)
DATE: FEBRUARY 28, 1984

NO. 1563X103
ES BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

F. INSURANCE AND TAXES

INSURANCE - MAJOR EQUIPMENT
MINOR EQUIPMENT
BUILDERS RISK
TAXES - COUNTY TAX ON PLANT
STATE BUSINESS
CITY BUSINESS
MAJOR EQUIPMENT LICENSE FEES
UNITS

SUBTOTAL - F. INSURANCE AND TAXES 0

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @	1.0	% OF	0.	0
NEXT \$2,400,000 @	0.8	% OF	0.	0
NEXT \$2,500,000 @	0.6	% OF	0.	0
OVER \$5,000,000 @	0.5	% OF	0.	0
FIX VALUE	1.FIX		0.	0

SUBTOTAL - G. BONDS 0

GRAND TOTAL - INDIRECT COSTS 17,351,750

3

SEC 351
SUBJECT: ID. LNC. M-DAM, TRET. MBNK, CFFD, PINTK (CONTRACT #3)
DATE: FEBRUARY 20, 1984

NO. 53, 1
ES BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	996,000
A.2 PERSONNEL - SUPERVISORY	6,915,800
A.3 PERSONNEL - ENGINEERING	3,632,500
A.4 PERSONNEL - OFFICE	1,502,500
A.5 PERSONNEL - PURCHASING	541,000
A.6 PERSONNEL - WAREHOUSING	862,500
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	1,083,000
C. TRAVEL AND ALLOWANCES	676,000
D. MISC & MAINTENANCE EXPENSES	3,964,900
E. GENERAL PLANT	3,867,500
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	24,922,500

NL 100-100000
ES BY OED
REV. L LEVY

A.1 PERSONNEL - ADMINISTRATIVE

SUBTOTAL -	A.1 PERSONNEL - ADMINISTRATIVE	996,000
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SUPERINTENDENT - EXCAVATION	2.0 X 33. MO @	8500.	560,000
SUPERINTENDENT - EMBANKMENT	2.0 X 33. MO @	8500.	560,000
SUPERINTENDENT - DRILL&BLAST	2.0 X 33. MO @	8500.	560,000
SUPERINTENDENT - GROUTING	2.0 X 33. MO @	8500.	560,000
SUPERINTENDENT - ELECTRICAL	2.0 X 33. MO @	8500.	560,000
SUPERINTENDENT - MECHANICAL	1.0 X 33. MO @	8500.	280,500
SUPERINTENDENT - N-MECHANIC	1.0 X 42. MO @	8500.	357,000
SERVICE TRUCK DRIVER	2.0 X 33. MO @	6000.	390,000
TRUCK CRANE OPERATOR	2.0 X 33. MO @	5300.	349,800
" " OILER	2.0 X 33. MO @	8000.	530,000
BUS DRIVERS	4.0 X 33. MO @	6000.	790,000
LOW BOY DRIVERS	1.0 X 33. MO @	6500.	214,500
TRUCK STEAM SHED.	2.0 X 6. MO @	6500.	78,000
BULLGANG	6.0 X 33. MO @	4000.	790,000
DRIVERS	4.0 X 33. MO @	2500.	330,000

SUSTOTAL -	A.2 PERSONNEL - SUPERVISORY	6,915,800
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PROJECT ENGINEER	1.0 X 42. MO @	9000.	378,000
FIELD ENGINEER	1.0 X 42. MO @	6500.	273,000
COST ENGINEER	1.0 X 42. MO @	6500.	273,000
DRAFTSMAN	2.0 X 33. MO @	4000.	264,000
REPRODUCTION	1.0 X 33. MO @	3000.	99,000
PARTY CHIEF 1.5 EA X 2 SHIFTS	3.0 X 33. MO @	6500.	645,000
INSTRUMENTMAN 1.5 X 2	3.0 X 33. MO @	6000.	595,000
ROD AND CHAIN MAN 3 X 2	6.0 X 33. MO @	5000.	990,000
DRIVER	1.0 X 33. MO @	3500.	115,500

PROJECT: ID. EXC. M-DAM, TRET. MDNK, CFFD, PINTK (CONTRACT #3)
 DATE: FEBRUARY 28, 1984

REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 42. MD @	10000.	420,000
GENERAL SUPERINTENDENT	1.0 X 42. MD @	9000.	378,000
SECRETARY	1.0 X 33. MD @	2500.	82,500
DRIVER	1.0 X 33. MD @	3500.	115,500

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 996,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - EXCAVATION	2.0 X 33. MD @	8500.	560,000
SUPERINTENDENT - EMBANKMENT	2.0 X 33. MD @	8500.	560,000
SUPERINTENDENT - DRILL&BLAST	2.0 X 33. MD @	8500.	560,000
SUPERINTENDENT - GROUTING	2.0 X 33. MD @	8500.	560,000
SUPERINTENDENT - ELECTRICAL	2.0 X 33. MD @	8500.	560,000
SUPERINTENDENT - MECHANICAL	1.0 X 33. MD @	8500.	280,500
SUPERINTENDENT - M-MECHANIC	1.0 X 42. MD @	8500.	357,000
SERVICE TRUCK DRIVER	2.0 X 33. MD @	6000.	396,000
TRUCK CRANE OPERATOR	2.0 X 33. MD @	5300.	349,800
" " OILER	2.0 X 33. MD @	8000.	530,000
BUS DRIVERS	4.0 X 33. MD @	6000.	790,000
LOW BOY DRIVERS	1.0 X 33. MD @	6500.	214,500
TRUCK STEAM SHED.	2.0 X 6. MD @	6500.	78,000
BULLGANG	6.0 X 33. MD @	4000.	790,000
DRIVERS	4.0 X 33. MD @	2500.	330,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 6,915,800

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 42. MD @	9000.	378,000
FIELD ENGINEER	1.0 X 42. MD @	6500.	273,000
COST ENGINEER	1.0 X 42. MD @	6500.	273,000
DRAFTSMAN	2.0 X 33. MD @	4000.	264,000
REPRODUCTION	1.0 X 33. MD @	3000.	99,000
PARTY CHIEF 1.5 EA X 2 SHIFTS	3.0 X 33. MD @	6500.	645,000
INSTRUMENTMAN 1.5 X 2	3.0 X 33. MD @	6000.	595,000
ROD AND CHAIN MAN 3 X 2	6.0 X 33. MD @	5000.	990,000
DRIVER	1.0 X 33. MD @	3500.	115,500

PROJECT: SUSI... WA...
SUBJECT: ID. EXC. M-DAM, TRET. MBNK. CFFD, PINTK (CONTRACT #3)
DATE: FEBRUARY 20, 1984

NO. 1583X.00
EE BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 42. MO @	6000.	252,000
ACCOUNTANTS	1.0 X 42. MO @	3500.	147,000
TIMEKEEPERS	2.0 X 33. MO @	2500.	165,000
PAYMASTER	1.0 X 33. MO @	2500.	82,500
CLERKS	2.0 X 33. MO @	2500.	165,000
STENOGRAPHERS	1.0 X 33. MO @	3000.	99,000
SWITCHBOARD RECEPTIONIST	1.0 X 42. MO @	3000.	126,000
JANITORS	2.0 X 42. MO @	3000.	252,000
COMPUTER SERVICE GROUP	2.0 X 42. MO @	3500.	294,000

SUBTOTAL - A.4 PERSONNEL - OFFICE 1,502,500

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 42. MO @	8000.	336,000
CLERKS	1.0 X 42. MO @	2500.	105,000
PORT AGENT	1.0 X 10. MO @	3500.	35,000
CLERK	1.0 X 10. MO @	2500.	25,000
TEAMSTER	1.0 X 10. MO @	4000.	40,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING 541,000

PROJECT: 1981.001. W. 1984
SUBJECT: ND. EXC. M-DAM, TRET. MBNK, CFFD, PINTK (CONTRACT #3)
DATE: FEBRUARY 28, 1984

NO. 1063.00
ES BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 42. MO @	6000.	252,000
RECEIVING CLERK	2.0 X 33. MO @	2500.	165,000
RECORDS CLERK	1.0 X 33. MO @	2500.	82,500
TEAMSTER	1.0 X 33. MO @	4000.	132,000
FORK LIFT OPERATOR	2.0 X 33. MO @	3500.	231,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 862,500

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

PROJECT COST: \$1.1M W. AREA
 SUBJECT: ID. EXC. M-DAM, TRET. MBNK, CFFD, PINTK (CONTRACT #3)
 DATE: FEBRUARY 28, 1984

NO. 111131.05
 ES BY DEB
 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	2.0 X 42. MOS @	600.	50,500
AUTOS	1.0 X 10. MOS @	600.	6,000
PICKUPS	9.0 X 42. MOS @	600.	226,800
PICKUPS	15.0 X 33. MOS @	600.	297,000
FLATBEDS	3.0 X 33. MOS @	600.	59,500
FLATBED	1.0 X 10. MOS @	600.	6,000
SERVICE TRUCKS	1.0 X 66. MOS @	800.	53,000
LOWBOYS	1.0 X 33. MOS @	800.	26,400
FORK LIFTS	1.0 X 33. MOS @	1000.	33,000
TRUCK CRANES	1.0 X 33. MOS @	15000.	495,000
MAN HAUL BUSES	2.0 X 33. MOS @	7500.	515,000
VANS	2.0 X 33. MOS @	800.	53,000
DULLGANG FLATBED	2.0 X 33. MOS @	800.	53,000
LICENSE FEES AND PERMITS	40.0 X 4. YRS @	60.	9,600

SUBTOTAL - B. VEHICLES 1,883,800

C. TRAVEL AND ALLOWANCES

* OF CONTRACTS = 39/18 = 2

TRAVEL TO JOB

MARRIED (8 X 2)	16.0 X 3. TRP @	2000.	80,000
SINGLE (6 X 2)	12.0 X 1. TRP @	2000.	24,000

SHIPMENT OF PERSONAL GOODS

MARRIED	16. EA @	15000.	240,000
SINGLE	12. EA @	8000.	96,000

TRAVEL EXPENSE-JOB CONNECTED

MARRIED	16.0 X 3. TRP @	2000.	80,000
SINGLE	12.0 X 1. TRP @	2000.	24,000
SUBSISTENCE - MEN	20.0 X 1. MOS @	1500.	42,000
TURN OVER FACTOR (10 %)	3. MEN @	30000.	90,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 676,000

PROJECT: ID. EXC. M-DAM, TRET. MBNK, CFFD, PINTK (CONTRACT #3)
DATE: FEBRUARY 28, 1984

NO. 13531.00
ES BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES & MAINTENANCE

OFFICE SUPPLIES	42. MOS @	500.	21,000
OFFICE RENT (INCL TEMPORARY)	42. MOS @	2500.	105,000
OFFICE EQUIPMENT	42. MOS @	1500.	63,000
ENGINEERING SUPPLIES	33. MOS @	1000.	33,000
ENGINEERING EQUIPMENT-RENTAL	33. MOS @	3000.	99,000
PHOTOS AND REPRODUCTIONS	33. MOS @	1000.	33,000
OUTSIDE ENGINEERING EXPENSE	1. LS	50000.	50,000
CONSULTANT EXPENSE	1. LS	50000.	50,000
WAREHOUSE & PURCHASE AIR	33. MOS @	12000.	396,000
LABOR RELATED SUPPLIES	33. MOS @	1000.	33,000
SAFETY & FIRST AID SUPPLIES	33. MOS @	11000.	363,000
BUILDING MAINTENANCE	42. MOS @	6000.	252,000
TELEPHONE & TELEX	42. MOS @	4500.	189,000
UTILITIES & JANITORIAL SERVICES	42. MOS @	10000.	420,000
SAHITARY FACILITIES	42. MOS @	3000.	126,000
WATER SERVICES	42. MOS @	2000.	84,000
DRINKING WATER AND ICE	42. MOS @	2000.	84,000
RADIO COMMUNICATIONS	42. MOS @	7500.	315,000
LEGAL EXPENSE	1. LS	100000.	100,000
AUDITS	1. LS	100000.	100,000
HOME OFFICE TRAVEL-TO JOBSITE	33. TRP @	4000.	132,000
ENTERTAINMENT, DONA & CONTRIB.	33. MOS @	1000.	33,000
DUES, FEES, ADVERTISING & SUBS.	33. MOS @	100.	3,300
TEST MATERIALS	1. LS	10000.	10,000
FIRE PROTECTION	1. LS	25000.	25,000
PERMITS	1. LS	5000.	5,000
POSTAGE	33. MOS @	200.	6,600
WINTER OVER EXPENSE	6. EA	60000.	360,000
COMPUTER SERVICES	42. EA	7000.	294,000
OPERATE TRUCK STEAM SHRED	6. EA	30000.	180,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES

3,964,900

PROJECT: SUBSTATION - WATKIN
SUBJECT: ID. CXC. M-DAM, TRET. MONK, CFFD, PINTK (CONTRACT #3)
DATE: FEBRUARY 28, 1984

NO. 1063...03
ES BY OES
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES (25 MEN X 150 SF/EA @ 70/SF)	1. LS	262500.	262,500
WAREHOUSE (6000 SF @ \$ 50/SF)	1. LS	300000.	300,000
GENERAL YARD AND SITE GRADING	1. LS	500000.	500,000
HOSPITAL OR FIRST AID TRAILER	1. LS	30000.	30,000
FIELD OFFICES	2. EA	30000.	60,000
SHOWER AND LOCKERROOMS	1. LS	35000.	35,000
CHANGE HOUSE	1. LS	50000.	50,000
WORKMENS SHELTERS	2. EA	10000.	20,000
TOOL SHED	1. LS	10000.	10,000
WELDER AND BLACKSMITH SHOP	1. LS	50000.	50,000
MECHANIC SHOP	1. LS	450000.	450,000
TIRE REPAIR	1. LS	100000.	100,000
TRUCK HEAT HOUSE & STEAM	1. LS	750000.	750,000
LIGHT&POWER INST&REM	1. LS	200000.	200,000
TELEPHONE INST&REM	1. LS	50000.	50,000
WATER SYSTEM INST&REM	1. LS	250000.	250,000
HEAT SYSTEM INST&REM	1. LS	500000.	500,000
SANITARY SYSTEM INST&REM	1. LS	100000.	100,000
FIRE PROTECTION	1. LS	50000.	50,000
RADIO COMMUNICATION	1. LS	50000.	50,000
HAUL ROADS	1. LS	50000.	50,000

SUBTOTAL - E. GENERAL PLANT 3,867,500

PROJECT: SUBS. NO. 1001
SUBJECT: ID. EXC. M-DAM, TRET. MBNK, CFFD, PINTK (CONTRACT #3)
DATE: FEBRUARY 20, 1984

NO. 1001
ES. BY DEB
REV. L. LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

F. INSURANCE AND TAXES

- INSURANCE - MAJOR EQUIPMENT
- MINOR EQUIPMENT
- BUILDERS RISK
- TAXES - COUNTY TAX ON PLANT
- STATE BUSINESS
- CITY BUSINESS
- MAJOR EQUIPMENT LICENSE FEES
- UNITS

SUBTOTAL - F. INSURANCE AND TAXES 0

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @	1.0	% OF	0.	0
NEXT \$2,400,000 @	0.8	% OF	0.	0
NEXT \$2,500,000 @	0.6	% OF	0.	0
OVER \$5,000,000 @	0.5	% OF	0.	0
FIX VALUE	1.0	FIX	0.	0

SUBTOTAL - G. BONDS 0

GRAND TOTAL - INDIRECT COSTS 24,922,500

PROJECT: SUSTAIN - WATER
SUBJECT: RAILWAY EXC., FND TREAT, DRAIN GALL (CONTRACT #4)
DATE: FEBRUARY 28, 1984

NO. 1553X105
ES. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

RECT 1000 HLEV

#4

NO 363
SUBJECT: WILLWAY EXC., FND TREAT, DRAIN GALL (CONTRACT #4) ES BY OED
DATE: FEBRUARY 28, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	914,500
A.2 PERSONNEL - SUPERVISORY	4,672,100
A.3 PERSONNEL - ENGINEERING	2,944,000
A.4 PERSONNEL - OFFICE	1,346,500
A.5 PERSONNEL - PURCHASING	400,500
A.6 PERSONNEL - WAREHOUSING	703,000
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	1,617,050
C. TRAVEL AND ALLOWANCES	676,000
D. MISC & MAINTENANCE EXPENSES	3,653,300
E. GENERAL PLANT	3,867,500
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	20,083,250

PROJECT: POSITION - WATINA NO. 1553X105
 SUBJECT: WILLOWY EXC., FND TREAT, DRAIN GALL (CONTRACT #4) ES BY DEB
 DATE: FEBRUARY 28, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 37. MO @	10000.	370,000
GENERAL SUPERINTENDENT	1.0 X 37. MO @	9000.	333,000
SECRETARY	1.0 X 37. MO @	2500.	92,500
DRIVER	1.0 X 34. MO @	3500.	119,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 914,500

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - EXCAVATION	2.0 X 26. MO @	8500.	442,000
SUPERINTENDENT - DRILL&BLAST	2.0 X 26. MO @	8500.	442,000
SUPERINTENDENT - MECHANICAL	2.0 X 26. MO @	8500.	442,000
MASTER MECHANIC	1.0 X 37. MO @	8500.	314,500
SERVICE TRUCK DRIVER	2.0 X 26. MO @	6000.	312,000
TRUCK CRANE OPERATOR	2.0 X 26. MO @	5300.	275,600
" " OILER	2.0 X 26. MO @	8000.	416,000
BUS DRIVERS	6.0 X 26. MO @	6000.	935,000
LOW BOY DRIVERS	2.0 X 26. MO @	6500.	330,000
BULLGANG	6.0 X 26. MO @	4000.	625,000
DRIVERS	2.0 X 26. MO @	2500.	130,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 4,672,100

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 37. MO @	9000.	333,000
FIELD ENGINEER	1.0 X 37. MO @	6500.	240,500
COST ENGINEER	1.0 X 37. MO @	6500.	240,500
DRAFTSMAN	2.0 X 26. MO @	4000.	208,000
REPRODUCTION	1.0 X 26. MO @	3000.	78,000
PARTY CHIEF	3.0 X 26. MO @	6500.	505,000
INSTRUMENTMAN	3.0 X 26. MO @	6000.	468,000
ROD AND CHAIN MAN	6.0 X 26. MO @	5000.	780,000
DRIVER	1.0 X 26. MO @	3500.	91,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 2,944,000

NC 563

ES BY DEB
REV. L. LEVY

A.4 PERSONNEL - OFFICE

SUBTOTAL -	A.4 PERSONNEL - OFFICE	1,346,500
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PURCHASING AGENT	1.0 X 37. MO @	0000.	296,000
CLERKS	1.0 X 37. MO @	2500.	92,500
PORT AGENT	1.0 X 10. MO @	3500.	35,000
CLERK	1.0 X 10. MO @	2500.	25,000
TEAMSTER	1.0 X 10. MO @	4000.	40,000

SUBTOTAL -	A.5 PERSONNEL - PURCHASING	488,500
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PROJECT: SUSTAINING WAREHOUSE NO. 0631.00
SUBJECT: RAILWAY EXC., FND TREAT, DRAIN GALL (CONTRACT #4) ES BY DEB
DATE: FEBRUARY 28, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 37. MO @	6000.	222,000
RECEIVING CLERK	2.0 X 26. MO @	2500.	130,000
RECORDS CLERK	1.0 X 26. MO @	2500.	65,000
TEAMSTER	1.0 X 26. MO @	4000.	104,000
FORK LIFT OPERATOR	2.0 X 26. MO @	3500.	182,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 703,000

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

SUBJECT: RAILWAY EXC., FND TREAT, DRAIN GALL (CONTRACT #4) ES BY DEB
 DATE: FEBRUARY 20, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	2.0 X 37. MOS @	600.	44,400
AUTOS	1.0 X 10. MOS @	600.	6,000
PICK UPS	9.0 X 37. MOS @	600.	199,800
PICK UPS	11.0 X 26. MOS @	600.	171,600
FLATBED	1.0 X 37. MOS @	600.	22,200
FLATBED	2.0 X 26. MOS @	600.	31,200
FLATBED	1.0 X 10. MOS @	600.	6,000
SERVICE TRUCKS	1.0 X 26. MOS @	800.	20,800
LOWBOYS	1.0 X 26. MOS @	800.	20,800
FORK LIFTS	1.0 X 26. MOS @	1000.	26,000
TRUCK CRANES	1.0 X 26. MOS @	15000.	390,000
MAN HAUL BUSES	3.0 X 26. MOS @	7000.	610,000
VANS	2.0 X 26. MOS @	800.	41,600
BULLGANG FLATBED	1.0 X 26. MOS @	800.	20,800
LICENSE FEES & PERMITS	37.0 X 3. YRS @	60.	6,650

SUBTOTAL - B. VEHICLES

1,617,850

C. TRAVEL AND ALLOWANCES

* OF CONTRACT = 34/18 = 2

TRAVEL TO JOB

MARRIED (8 X 2)	16.0 X 3. TRP @	2000.	80,000
SINGLE (6 X 2)	12.0 X 1. TRP @	2000.	24,000

SHIPMENT OF PERSONAL GOODS

MARRIED (12 X 2)	16. EA @	15000.	240,000
SINGLE (10 X 2)	12. EA @	8000.	96,000

TRAVEL EXPENSE-JOB CONNECTED

MARRIED	16.0 X 3. TRP @	2000.	80,000
SINGLE	12.0 X 1. TRP @	2000.	24,000

SUBSISTENCE - MEN	20.0 X 1. MOS @	1500.	42,000
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TURN OVER FACTOR (10 %)	3. MEN @	30000.	90,000
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SUBTOTAL - C. TRAVEL AND ALLOWANCES

676,000

PROJECT: RAILWAY EXC., FND TREAT, DRAIN GALL (CONTRACT #4) NO. 1563.153
 SUBJECT: DATE: FEBRUARY 20, 1984 ES BY DEB
 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

D. MISCELLANEOUS EXPENSES&MAINTENANCE

OFFICE SUPPLIES	37. MOS @	500.	18,500
OFFICE RENT (INCL TEMPORARY)	37. MOS @	2500.	92,500
OFFICE EQUIPMENT	37. MOS @	1500.	55,500
ENGINEERING SUPPLIES	34. MOS @	1000.	34,000
ENGINEERING EQUIPMENT-RENTAL	34. MOS @	3000.	102,000
PHOTOS AND REPRODUCTIONS	34. MOS @	1000.	34,000
OUTSIDE ENGINEERING EXPENSE	1. LS	50000.	50,000
CONSULTANT EXPENSE	1. LS	50000.	50,000
WAREHOUSE & PURCHASE AIR	34. MOS @	12000.	408,000
LABOR RELATED SUPPLIES	34. MOS @	1000.	34,000
SAFETY & FIRST AID SUPPLIES	33. MOS @	11000.	363,000
BUILDING MAINTENANCE	37. MOS @	6000.	222,000
TELEPHONE & TELEX	37. MOS @	4500.	166,500
UTILITIES & JANITORIAL SERVICES	37. MOS @	10000.	370,000
SANITARY FACILITIES	37. MOS @	3000.	111,000
WATER SERVICES	37. MOS @	2000.	74,000
DRINKING WATER AND ICE	37. MOS @	2000.	74,000
RADIO COMMUNICATIONS	37. MOS @	7500.	277,500
LEGAL EXPENSE	1. LS	100000.	100,000
AUDITS	1. LS	100000.	100,000
HOME OFFICE TRAVEL-TO JOBSITE	26. TRP @	4000.	104,000
ENTERTAINMENT, DONA & CONTRIB.	26. MOS @	1000.	26,000
DUES, FEES, ADVERTISING & SUBS.	26. MOS @	100.	2,600
TEST MATERIALS	1. LS	10000.	10,000
FIRE PROTECTION	1. LS	25000.	25,000
PERMITS	1. LS	5000.	5,000
POSTAGE	26. MOS @	200.	5,200
WINTER OVER EXPENSE	8. EA	60000.	480,000
COMPUTER SERVICES	37. EA	7000.	259,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES 3,653,300

NO. 1063, 1966
E.S. BY DEB
REV. L LEVY

E. GENERAL PLANT

SUBTOTAL -	E. GENERAL PLANT	3,867,500
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PROJECT: WYOMING
SUBJECT: PILLWAY EXC., FND TREAT, DRAIN GALL (CONTRACT #4)
DATE: FEBRUARY 28, 1984
NO. 1063
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

F. INSURANCE AND TAXES

INSURANCE - MAJOR EQUIPMENT
MINOR EQUIPMENT
BUILDERS RISK
TAXES - COUNTY TAX ON PLANT
STATE BUSINESS
CITY BUSINESS
MAJOR EQUIPMENT LICENSE FEES
UNITS

SUBTOTAL - F. INSURANCE AND TAXES 0

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @	1.0	% OF	0.	0
NEXT \$2,400,000 @	0.8	% OF	0.	0
NEXT \$2,500,000 @	0.6	% OF	0.	0
OVER \$5,000,000 @	0.5	% OF	0.	0
FIX VALUE	1.0	FIX	0.	0

SUBTOTAL - G. BONDS 0

GRAND TOTAL - INDIRECT COSTS 20,883,250

00234

5

000234
SUBJECT: ET/FAC.TUN/EXC.CONCR/PW.INT/CONC. (CONTRACT #5) ES BY OEB
DATE: FEBRUARY 28, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	950,000
A.2 PERSONNEL - SUPERVISORY	7,634,000
A.3 PERSONNEL - ENGINEERING	3,053,000
A.4 PERSONNEL - OFFICE	1,510,000
A.5 PERSONNEL - PURCHASING	609,000
A.6 PERSONNEL - WAREHOUSING	875,500
A.7 PERSONNEL - MEDICAL SAFETY	0
D. VEHICLES	2,210,300
C. TRAVEL AND ALLOWANCES	836,000
D. MISC & MAINTENANCE EXPENSES	3,647,500
E. GENERAL PLANT	4,060,000
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	25,465,300

PROJECT: SUSITNA - UATANA
 SUBJECT: LET/INC.TUN/EXC.CONCR/PW.INT/CONC. (CONTRACT #5)
 DATE: FEBRUARY 28, 1964

NO. #1363-105
 ES BY DEC
 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 38. MO @	10000.	380,000
GENERAL SUPERINTENDENT	1.0 X 30. MO @	9000.	342,000
SECRETARY	1.0 X 30. MO @	2500.	95,000
DRIVER	1.0 X 30. MO @	3500.	133,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 950,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - EXCAVATION	2.0 X 26. MO @	8500.	442,000
SUPERINTENDENT - TUNNEL	2.0 X 20. MO @	8500.	340,000
SUPERINTENDENT - GROUTING	2.0 X 10. MO @	8500.	170,000
SUPERINTENDENT - CARP-INTAKE	2.0 X 14. MO @	8500.	238,000
SUPERINTENDENT - CONC-TUNNEL	2.0 X 15. MO @	8500.	255,000
SUPERINTENDENT - ELECTRICAL	2.0 X 35. MO @	8500.	595,000
SUPERINTENDENT - MECHANICAL	2.0 X 35. MO @	8500.	595,000
MASTER MECHANIC	1.0 X 30. MO @	8500.	323,000
SERVICE TRUCK DRIVER	4.0 X 35. MO @	6000.	840,000
TRUCK CRANE OPERATOR	2.0 X 35. MO @	5300.	371,000
" " OILER	2.0 X 35. MO @	9000.	560,000
BUS DRIVERS	6.0 X 35. MO @	6000.	1,260,000
LOW BOY DRIVERS	2.0 X 35. MO @	6500.	455,000
BULLGANG	6.0 X 35. MO @	4000.	840,000
DRIVERS	4.0 X 35. MO @	2500.	350,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 7,634,000

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 30. MO @	9000.	342,000
OFFICE ENGINEER	1.0 X 30. MO @	6500.	247,000
FIELD ENGINEER	1.0 X 30. MO @	6500.	247,000
COST ENGINEER	1.0 X 30. MO @	6500.	247,000
PLANT ENGINEER	1.0 X 10. MO @	6500.	65,000
DRAFTSMAN	6.0 X 20. MO @	4000.	480,000
REPRODUCTION	1.0 X 35. MO @	3000.	105,000
PARTY CHIEF 2 X 35+2X14	1.4 X 35. MO @	6500.	318,500
INSTRUMENTMAN	1.4 X 35. MO @	6000.	294,000
ROD AND CHAIN MAN	2.0 X 35. MO @	5000.	490,000
SECRETARY	1.0 X 30. MO @	2500.	95,000



3,053,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING

PROJECT: [REDACTED] UNIT: [REDACTED] NO. [REDACTED]
 SUBJECT: [REDACTED] ET/FAC. TUN/EXC. CONCR/PW. INT/CONC. (CONTRACT #5) ES BY OED
 DATE: FEBRUARY 28, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 30. MO @	6000.	228,000
ACCOUNTANTS	1.0 X 30. MO @	3500.	133,000
TIMEKEEPERS	2.0 X 35. MO @	2500.	175,000
PAYMASTER	1.0 X 30. MO @	2500.	95,000
CLERKS	2.0 X 35. MO @	2500.	175,000
STENOGRAPHERS	1.0 X 35. MO @	3000.	105,000
SWITCHBOARD RECEPTIONIST	1.0 X 35. MO @	3000.	105,000
JANITORS	2.0 X 30. MO @	3000.	220,000
COMPUTER SERVICE GROUP	2.0 X 30. MO @	3500.	266,000

SUBTOTAL - A.4 PERSONNEL - OFFICE 1,510,000

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 30. MO @	0000.	304,000
BUYERS	1.0 X 30. MO @	5000.	190,000
CLERKS	1.0 X 30. MO @	2500.	95,000
PORT AGENT	1.0 X 10. MO @	3500.	35,000
CLERK	1.0 X 10. MO @	2500.	25,000
TEAMSTER	1.0 X 10. MO @	4000.	40,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING 689,000

NO. 153
ES BY OED
REV. L LEVY

HARZA ENGINEERING COMPANY

INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 30. MO @	6000.	228,000
RECEIVING CLERK	2.0 X 35. MO @	2500.	175,000
RECORDS CLERK	1.0 X 35. MO @	2500.	87,500
TEAMSTER	1.0 X 35. MO @	4000.	140,000
FORK LIFT OPERATOR	2.0 X 35. MO @	3500.	245,000

SUBTOTAL -	A.6 PERSONNEL - WAREHOUSING	875,500
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A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

PROJECT: [REDACTED] NO. 563
 SUBJECT: LET/FAC.TUN/EXC.CONCR/PW.INT/CONC. (CONTRACT #5) ES BY QED
 DATE: FEBRUARY 20, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	2.0 X 38. MOS @	600.	45,600
AUTOS	1.0 X 10. MOS @	600.	6,000
PICK UPS	9.0 X 38. MOS @	600.	205,200
PICK UPS	7.0 X 38. MOS @	600.	159,600
PICK UPS	2.0 X 26. MOS @	600.	31,200
PICK UPS	2.0 X 20. MOS @	600.	24,000
PICK UPS	2.0 X 15. MOS @	600.	18,000
PICK UPS	6.0 X 14. MOS @	600.	50,500
PICK UPS	3.0 X 10. MOS @	600.	18,000
FLAT BEDS	3.0 X 35. MOS @	600.	63,000
FLAT BED	1.0 X 10. MOS @	600.	6,000
SERVICE TRUCKS	2.0 X 35. MOS @	800.	56,000
LOWBOYS	1.0 X 35. MOS @	800.	28,000
FORK LIFTS	1.0 X 35. MOS @	1000.	35,000
TRUCK CRANES	1.0 X 35. MOS @	15000.	525,000
MAN HAUL BUSES	3.0 X 35. MOS @	7000.	820,000
VANS	2.0 X 35. MOS @	800.	56,000
BULLGANG TRUCK	2.0 X 35. MOS @	800.	56,000
LICENSE FEES & PERMITS	40.0 X 3. YRS @	60.	7,200

SUBTOTAL - D. VEHICLES 2,210,300

C. TRAVEL AND ALLOWANCES

OF CONTRACTS = 35/10 = 2

TRAVEL TO JOB			
MARRIED (2 X 10)	20.0 X 3. TRP @	2000.	100,000
SINGLE (2 X 9)	16.0 X 1. TRP @	2000.	32,000
SHIPMENT OF PERSONAL GOODS			
MARRIED	20. EA @	15000.	300,000
SINGLE	16. EA @	8000.	128,000
TRAVEL EXPENSE-JOB CONNECTED			
MARRIED	20.0 X 3. TRP @	2000.	100,000
SINGLE	16.0 X 1. TRP @	2000.	32,000
SUBSISTENCE - MEN	36.0 X 1. MOS @	1500.	54,000
TURN OVER FACTOR (10 %)	3. MEN @	30000.	90,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 836,000

DEC 1983
 SUBJECT: CIV/PAV. TUN/EXC. CONCR/PW. INT/CONC. (CONTRACT #5) ES BY DEO
 DATE: FEBRUARY 28, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

D. MISCELLANEOUS EXPENSES&MAINTENANCE

OFFICE SUPPLIES	38. MOS @	500.	19,000
OFFICE RENT (INCL TEMPORARY)	38. MOS @	2500.	95,000
OFFICE EQUIPMENT	38. MOS @	1500.	57,000
ENGINEERING SUPPLIES	35. MOS @	1000.	35,000
ENGINEERING EQUIPMENT-RENTAL	35. MOS @	3000.	105,000
PHOTOS AND REPRODUCTIONS	35. MOS @	1000.	35,000
OUTSIDE ENGINEERING EXPENSE	1. LS	150000.	150,000
CONSULTANT EXPENSE	1. LS	50000.	50,000
WAREHOUSE & PURCHASE AIR	35. MOS @	12000.	420,000
LABOR RELATED SUPPLIES	35. MOS @	1000.	35,000
SAFETY & FIRST AID SUPPLIES	35. MOS @	11000.	385,000
BUILDING MAINTENANCE	38. MOS @	6000.	228,000
TELEPHONE & TELEX	38. MOS @	4500.	171,000
UTILITIES & JANITORIAL SERVICES	38. MOS @	10000.	380,000
SANITARY FACILITIES	38. MOS @	3000.	114,000
WATER SERVICES	38. MOS @	2000.	76,000
DRINKING WATER AND ICE	38. MOS @	2000.	76,000
RADIO COMMUNICATIONS	38. MOS @	7500.	285,000
LEGAL EXPENSE	1. LS	100000.	100,000
AUDITS	1. LS	100000.	100,000
HOME OFFICE TRAVEL-TO JOBSITE	35. TRP @	4000.	140,000
ENTERTAINMENT, DONA & CONTRIB.	35. MOS @	1000.	35,000
DUES, FEES, ADVERTISING & SUBS.	35. MOS @	100.	3,500
TEST MATERIALS	1. LS	10000.	10,000
FIRE PROTECTION	1. LS	25000.	25,000
PERMITS	1. LS	5000.	5,000
POSTAGE	35. MOS @	200.	7,000
WINTER OVER EXPENSE	4. EA	60000.	240,000
COMPUTER SERVICES	38. EA	7000.	266,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES 3,647,500

SEC 101 NO. 63
SUBJECT: LET/FAC.TUH/EXC.CONCR/PW.INT/CONC. (CONTRACT #3) ES BY OED
DATE: FEBRUARY 28, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES (30 MEN X 150 SF/EA @ 70/SF)	1. LS	315000.	315,000
WAREHOUSE (8000 SF @ \$ 50/SF)	1. LS	400000.	400,000
GENERAL YARD AND SITE GRADING	1. LS	500000.	500,000
HOSPITAL OR FIRST AID TRAILER	1. LS	30000.	30,000
INSPECTORS FIELD OFFICES	2. EA	30000.	60,000
FIELD OFFICES	2. EA	30000.	60,000
SHOWER AND LOCKERROOMS	1. LS	35000.	35,000
CHANGE HOUSE	1. LS	50000.	50,000
WORKMENS SHELTERS	4. EA	10000.	40,000
TOOL SHEDS	1. LS	20000.	20,000
WELDING AND BLACKSMITH SHOP	1. LS	50000.	50,000
MECHANIC SHOP	1. LS	450000.	450,000
TIRE REPAIR	1. LS	100000.	100,000
TRUCK HEAT HOUSE & STEAM	1. LS	750000.	750,000
LIGHT&POWER INST&REM	1. LS	200000.	200,000
TELEPHONE INST&REM	1. LS	50000.	50,000
WATER SYSTEM INST&REM	1. LS	250000.	250,000
HEAT SYSTEM INST&REM	1. LS	500000.	500,000
SANITARY SYSTEM INST&REM	1. LS	100000.	100,000
FIRE PROTECTION	1. LS	50000.	50,000
RADIO COMMUNICATION	1. LS	50000.	50,000

SUBTOTAL - E. GENERAL PLANT 4,060,000

REC-101

EE BY OED
REV. L. LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

F. INSURANCE AND TAXES

INSURANCE - MAJOR EQUIPMENT

MINOR EQUIPMENT

BUILDERS RISK

TAXES - COUNTY TAX ON PLANT

STATE BUSINESS

CITY BUSINESS

MAJOR EQUIPMENT LICENSE FEES

UNITS

SUBTOTAL - F. INSURANCE AND TAXES

2

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

157 \$100,000 @

1.0 % OF

0.

NEXT \$2,400,000 @

0.8 % OF

Q.

NEXT \$2,500,000 @

0.6 % OF

Q.

0

OVER \$5,000,000 @

0.5 % OF

8.

2

FIX VALUE

1. FIX

Q.



SUBTOTAL - G. BONDS

0

GRAND TOTAL - INDIRECT COSTS

25,465,300

6

COPIES OF THE REPORTS OF THE COMMISSIONERS OF THE GENERAL LAND OFFICE, AND OF THE SECRETARIES OF THE TREASURY, IN RELATION TO THE LANDS BELONGING TO THE CROWN, ARE HEREBY ORDERED TO BE FORWARDED TO THE SECRETARY OF STATE, FOR HIS INFORMATION.

SUBJECT: WER FACILITIES (EXC. & CONCRETE). (CONTRACT #6)
DATE: FEBRUARY 29, 1984

ES' BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	1,292,000
A.2 PERSONNEL - SUPERVISORY	13,620,000
A.3 PERSONNEL - ENGINEERING	6,511,000
A.4 PERSONNEL - OFFICE	2,620,000
A.5 PERSONNEL - PURCHASING	968,000
A.6 PERSONNEL - WAREHOUSING	1,764,000
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	3,723,100
C. TRAVEL AND ALLOWANCES	1,209,000
D. MISC & MAINTENANCE EXPENSES	6,179,800
E. GENERAL PLANT	3,405,000
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	41,291,900

PROJECT: SUSI - WATANA

SUBJECT: POWER FACILITIES (EXC. & CONCRETE). (CONTRACT #6)

DATE: FEBRUARY 29, 1984

NO. 1563A185

ES BY UEB

REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 60. MO @	10000.	600,000
GENERAL SUPERINTENDENT	1.0 X 36. MO @	9000.	342,000
SECRETARY	1.0 X 56. MO @	2500.	140,000
DRIVER	1.0 X 50. MO @	3500.	210,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 1,292,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - TUNNEL	3.4 X 56. MO @	8500.	1,610,000
SUPERINTENDENT - CONCRETE	2.1 X 56. MO @	8500.	1,000,000
SUPERINTENDENT - FORMS	2.1 X 56. MO @	8500.	1,000,000
SUPERINTENDENT - ELECTRICAL	2.0 X 56. MO @	8500.	950,000
SUPERINTENDENT - MECHANICAL	2.0 X 56. MO @	8500.	950,000
SUPERINTENDENT - EQ. GATES	1.0 X 20. MO @	3500.	170,000
SERVICE TRUCK DRIVER	4.0 X 56. MO @	6000.	1,344,000
TRUCK CRANE OPERATOR	2.0 X 56. MO @	5300.	595,000
" " OILER	2.0 X 56. MO @	8000.	895,000
BUS DRIVERS	6.0 X 56. MO @	6000.	2,016,000
LOW BOY DRIVERS	2.0 X 56. MO @	6500.	730,000
BULLGANG	8.0 X 56. MO @	4000.	1,792,000
DRIVERS	4.0 X 56. MO @	2500.	560,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 13,620,000

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 60. MO @	9000.	540,000
OFFICE ENGINEER	1.0 X 56. MO @	6500.	364,000
FIELD ENGINEER	1.0 X 56. MO @	6500.	364,000
COST ENGINEER	1.0 X 56. MO @	6500.	364,000
PLANT ENGINEER	1.0 X 10. MO @	6500.	65,000
DRAFTSMAN	3.0 X 56. MO @	4000.	670,000
REPRODUCTION	1.0 X 56. MO @	3000.	168,000
PARTY CHIEF	3.0 X 56. MO @	6500.	1,092,000
INSTRUMENTMAN	3.0 X 56. MO @	6000.	1,008,000
ROD AND CHAIN MAN	6.0 X 56. MO @	5000.	1,680,000
DRIVER	1.0 X 56. MO @	3500.	196,000

PROJECT: SUSITRA - WATANA

SUBJECT: POWER FACILITIES (EXC. & CONCRETE). (CONTRACT #6)

DATE: FEBRUARY 29, 1984

NO. 1563X.105

ES BY OEB

REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 60. MO @	6000.	360,000
PROJECT ACCOUNTANTS	1.0 X 60. MO @	5000.	300,000
ACCOUNTANTS	1.0 X 56. MO @	3500.	196,000
TIMEKEEPERS	2.0 X 56. MO @	2500.	280,000
PAYMASTER	1.0 X 56. MO @	2500.	140,000
CLERKS	2.0 X 56. MO @	2500.	280,000
STENOGRAPHERS	1.0 X 56. MO @	3000.	168,000
SWITCHBOARD RECEPTIONIST	1.0 X 56. MO @	3000.	168,000
JANITORS	2.0 X 56. MO @	3000.	336,000
COMPUTER SERVICE GROUP	2.0 X 56. MO @	3500.	392,000

SUBTOTAL - A.4 PERSONNEL - OFFICE 2,620,000

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 56. MO @	8000.	448,000
BUYERS	1.0 X 56. MO @	5000.	280,000
CLERKS	1.0 X 56. MO @	2500.	140,000
PORT AGENT	1.0 X 10. MO @	3500.	35,000
CLERK	1.0 X 10. MO @	2500.	25,000
TEAMSTER	1.0 X 10. MO @	4000.	40,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING 968,000

PROJECT: USI - WAREHOUSE NO. 10
SUBJECT: WARE FACILITIES (EXC. & CONCRETE). (CONTRACT #6) EST. BY UED
DATE: FEBRUARY 29, 1984 REV. L. LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 56. MO @	6000.	336,000
RECEIVING CLERK	2.0 X 56. MO @	2500.	280,000
RECORDS CLERK	1.0 X 56. MO @	2500.	140,000
TEAMSTER	1.0 X 56. MO @	4300.	224,000
FUEL DISPATCHER	2.0 X 56. MO @	3500.	392,000
FORK LIFT OPERATOR	2.0 X 56. MO @	3500.	392,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 1,764,000

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

NO. 2538

EE BY DEF

REV. L. LEVY

HARZA ENGINEERING COMPANY

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTO	3.0 X 60.	MOS @	600.	108,000
AUTO	1.0 X 10.	MOS @	600.	6,000
PICKUP	7.0 X 60.	MOS @	600.	252,000
PICKUP	24.0 X 56.	MOS @	600.	805,000
PICKUP	1.0 X 20.	MOS @	600.	12,000
PICKUP	1.0 X 10.	MOS @	600.	6,000
FLATBED	1.0 X 10.	MOS @	600.	6,000
SERVICE TRUCKS	2.0 X 56.	MOS @	800.	89,500
LOWBOYS	1.0 X 52.	MOS @	800.	41,600
FORK LIFTS	1.0 X 56.	MOS @	1000.	56,000
TRUCK CRANES	1.0 X 56.	MOS @	15000.	840,000
MAN HAUL BUSES	3.0 X 56.	MOS @	7800.	1,310,000
VANS	2.0 X 56.	MOS @	800.	89,500
BULLGANG TRUCK	2.0 X 56.	MOS @	800.	89,500
LICENSE FEES AND PERMITS	40.0 X 5.	YRS @	60.	12,000

SUBTOTAL -	D. VEHICLES	3,723,100
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C. TRAVEL AND ALLOWANCES

* QF CONTRACTS = 56/18 = 3

TRAVEL TO JOB

MARRIED (10 X 3)	30.0 X 3. TRP @	2000.	150,000
SINGLE (8 X 3)	24.0 X 1. TRP @	2000.	48,000
SHIPMENT OF PERSONAL GOODS			
MARRIED	30. EA @	15000.	450,000
SINGLE	24. EA @	8000.	192,000
TRAVEL EXPENSE-JOB CONNECTED			
MARRIED	30.0 X 3. TRP @	2000.	150,000
SINGLE	24.0 X 1. TRP @	2000.	48,000
SUBSISTENCE - MEN	54.0 X 1. NOS @	1500.	81,000
TURN OVER FACTOR (10 %)	3. MEN @	30000.	90,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 1,209,000

PROJECT: SUSTAIN WATER NO. 1305A.ES
 SUBJECT: WATER FACILITIES (EXC. & CONCRETE). (CONTRACT #6) ES BY DES
 DATE: FEBRUARY 29, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

D. MISCELLANEOUS EXPENSES&MAINTENANCE

OFFICE SUPPLIES	60. MOS @	500.	30,000
OFFICE RENT (INCL TEMPORARY)	60. MOS @	2500.	150,000
OFFICE EQUIPMENT RENTAL	60. MOS @	1500.	90,000
ENGINEERING SUPPLIES	56. MOS @	1000.	56,000
ENGINEERING EQUIPMENT-RENTAL	56. MOS @	3000.	168,000
PHOTOS AND REPRODUCTIONS	56. MOS @	1000.	56,000
OUTSIDE ENGINEERING EXPENSE	1. LS	100000.	100,000
CONSULTANT EXPENSE	1. LS	100000.	100,000
WAREHOUSE & PURCHASE AIR	56. MOS @	12000.	670,000
LABOR RELATED SUPPLIES	56. MOS @	1000.	56,000
SAFETY & FIRST AID SUPPLIES	56. MOS @	11000.	615,000
BUILDING MAINTENANCE	56. MOS @	6000.	336,000
TELEPHONE & TELEX	56. MOS @	4500.	252,000
UTILITIES & JANITORIAL SERVICES	56. MOS @	10000.	560,000
SANITARY FACILITIES	56. MOS @	3000.	168,000
WATER SERVICES	56. MOS @	2000.	112,000
DRINKING WATER AND ICE	56. MOS @	2000.	112,000
RADIO COMMUNICATIONS	56. MOS @	7500.	420,000
LEGAL EXPENSE	1. LS	100000.	100,000
AUDITS	1. LS	100000.	100,000
HOME OFFICE TRAVEL-TO JOBSITE	56. TRP @	4000.	224,000
ENTERTAINMENT, DONA & CONTRIB.	56. MOS @	1000.	56,000
DUES, FEES, ADVERTISING & SUBS.	56. MOS @	100.	5,600
TEST MATERIALS	1. LS	10000.	10,000
FIRE PROTECTION	1. LS	25000.	25,000
PERMITS	56. MOS @	5000.	280,000
POSTAGE	56. MOS @	200.	11,200
WINTER OVER EXPENSE	16. EA	60000.	960,000
COMPUTER SERVICES	51. EA	7000.	357,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES

6,179,800

REC. 101. 10. 53. 53.
SUBJECT: POWER FACILITIES (EXC. & CONCRETE). (CONTRACT #5) ES BY OEB
DATE: FEBRUARY 29, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES (40 MEN X 150 SF/EA @ 70/SF)	1. LS	420000.	420,000
WAREHOUSE (3000 SF @ \$ 50/SF)	1. LS	400000.	400,000
GENERAL YARD AND SITE GRADING	1. LS	500000.	500,000
HOSPITAL OR FIRST AID TRAILER	1. LS	30000.	30,000
INSPECTOR FIELD OFFICES	2. EA	30000.	60,000
FIELD OFFICES	2. EA	30000.	60,000
SHOWER AND LOCKERROOMS	1. LS	35000.	35,000
CHANGE HOUSE	1. LS	50000.	50,000
WORKMENS SHELTERS	4. EA	10000.	40,000
TOOL SHEDS	1. LS	10000.	10,000
WELDING AND BLACKSMITH SHOP	1. LS	50000.	50,000
MECHANIC SHOP	1. LS	450000.	450,000
TIRE REPAIR	1. LS	100000.	100,000
LIGHT&POWER INST&REM	1. LS	200000.	200,000
TELEPHONE INST&REM	1. LS	50000.	50,000
WATER SYSTEM INST&REM	1. LS	250000.	250,000
HEAT SYSTEM INST&REM	1. LS	500000.	500,000
SANITARY SYSTEM INST&REM	1. LS	100000.	100,000
FIRE PROTECTION	1. LS	50000.	50,000
RADIO COMMUNICATION	1. LS	50000.	50,000

SUBTOTAL - E. GENERAL PLANT 3,405,000

PROJECT: SUSITAN WATERS
SUBJECT: WATER FACILITIES (EXC. & CONCRETE). (CONTRACT #6)
DATE: FEBRUARY 29, 1984

NO. 1063X.105
EE BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

F. INSURANCE AND TAXES

INSURANCE - MAJOR EQUIPMENT
MINOR EQUIPMENT
BUILDERS RISK
TAXES - COUNTY TAX ON PLANT
STATE BUSINESS
CITY BUSINESS
MAJOR EQUIPMENT LICENSE FEES
UNITS

SUBTOTAL - F. INSURANCE AND TAXES 0

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @	1.0	% OF	0.	0
NEXT \$2,400,000 @	0.8	% OF	0.	0
NEXT \$2,500,000 @	0.6	% OF	0.	0
OVER \$5,000,000 @	0.5	% OF	0.	0
FIX VALUE	1.1%		0.	0

SUBTOTAL - G. BONDS 0

GRAND TOTAL - INDIRECT COSTS 41,291,900

PROJECT: SUSI AND - WITAND NO. 1363X103
SUBJECT: I-DAM EMBANKMENT & RELICT CHANNEL. (CONTRACT #7) ES BY DEB
DATE: FEBRUARY 29, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	2,245,000
A.2 PERSONNEL - SUPERVISORY	9,036,000
A.3 PERSONNEL - ENGINEERING	4,602,000
A.4 PERSONNEL - OFFICE	2,227,500
A.5 PERSONNEL - PURCHASING	913,000
A.6 PERSONNEL - WAREHOUSING	1,240,500
A.7 PERSONNEL - MEDICAL SAFETY	0
D. VEHICLES	3,313,900
C. TRAVEL AND ALLOWANCES	1,502,000
D. MISC & MAINTENANCE EXPENSES	7,199,300
E. GENERAL PLANT	4,405,000
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	36,753,200

7

PROJECT: SUSITNA - WATANA
SUBJECT: I-DAM EMBANKMENT & RELICT CHANNEL. (CONTRACT #7)
DATE: FEBRUARY 29, 1984

NO. #1563X105
ES BY DES
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	2,245,000
A.2 PERSONNEL - SUPERVISORY	9,036,000
A.3 PERSONNEL - ENGINEERING	4,602,000
A.4 PERSONNEL - OFFICE	2,227,500
A.5 PERSONNEL - PURCHASING	813,000
A.6 PERSONNEL - WAREHOUSING	1,240,500
A.7 PERSONNEL - MEDICAL SAFETY	0
D. VEHICLES	3,313,900
C. TRAVEL AND ALLOWANCES	1,502,000
D. MISC & MAINTENANCE EXPENSES	7,199,300
E. GENERAL PLANT	4,405,000
F. INSURANCE AND TAXES	0
G. BONDS	0
GRAND TOTAL INDIRECT COSTS	36,753,200

SEC 001 NO 263
 SUBJECT: I-DAM EMBANKMENT & RELICT CHANNEL. (CONTRACT #7) ES BY OED
 DATE: FEBRUARY 29, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 75. MO @	10000.	750,000
GENERAL SUPERINTENDENT	1.0 X 73. MO @	9000.	655,000
SECRETARY	2.0 X 70. MO @	2500.	350,000
DRIVER	2.0 X 70. MO @	3500.	490,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 2,245,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - EXCAVATION	2.0 X 36. MO @	8500.	610,000
SUPERINTENDENT - DRILL&BLAST	2.0 X 36. MO @	8500.	610,000
SUPERINTENDENT - EMBANKMENT	2.0 X 36. MO @	8500.	610,000
SUPERINTENDENT - ELECTRICAL	2.0 X 36. MO @	8500.	610,000
SUPERINTENDENT - MECHANICAL	2.0 X 36. MO @	8500.	610,000
PLANT SAND & GRAVEL	2.0 X 36. MO @	8500.	610,000
SERVICE TRUCK DRIVER	4.0 X 43. MO @	6000.	1,032,000
TRUCK CRANE OPERATOR	2.0 X 51. MO @	5300.	549,000
" " OILER	2.0 X 51. MO @	8000.	815,000
BUS DRIVERS	6.0 X 36. MO @	6000.	1,296,000
LOW BOY DRIVERS	2.0 X 36. MO @	6500.	468,000
BULLDOZER DRIVERS	6.0 X 36. MO @	4000.	865,000
	4.0 X 36. MO @	2500.	360,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 9,030,000

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 73. MO @	9000.	655,000
OFFICE ENGINEER	1.0 X 70. MO @	6500.	455,000
FIELD ENGINEER	1.0 X 70. MO @	6500.	455,000
COST ENGINEER	1.0 X 70. MO @	6500.	455,000
PLANT ENGINEER	1.0 X 22. MO @	6500.	143,000
DRAFTSMAN	4.0 X 36. MO @	4000.	575,000
REPRODUCTION	1.0 X 36. MO @	3000.	108,000
PARTY CHIEF	2.0 X 36. MO @	6500.	468,000
INSTRUMENTMAN	2.0 X 36. MO @	6000.	432,000
ROD AND CHAIN MAN	4.0 X 36. MO @	5000.	720,000
SECRETARY	1.0 X 36. MO @	2500.	90,000
DRIVER	1.0 X 36. MO @	3500.	126,000

SUBTOTAL

(A. J. PERSONNEL -

ENGINEERING

5,082,000

JEC JS1 - L NO 63
SUBJECT Y-DAM EMBANKMENT & RELICT CHANNEL. (CONTRACT #7) ES BY DEB
DATE: FEBRUARY 29, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 70. MO @	6000.	420,000
ACCOUNTANTS	1.0 X 51. MO @	3500.	178,500
TIMEKEEPERS	3.0 X 51. MO @	2500.	382,500
PAYMASTER	1.0 X 51. MO @	2500.	127,500
CLERKS	2.0 X 51. MO @	2500.	255,000
STENOGRAPHERS	1.0 X 51. MO @	3000.	153,000
SWITCHBOARD RECEPTIONIST	1.0 X 51. MO @	3000.	153,000
JANITORS	2.0 X 51. MO @	3000.	306,000
COMPUTER SERVICE GROUP	2.0 X 56. MO @	3500.	252,000

SUBTOTAL - A.4 PERSONNEL - OFFICE 2,227,500

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 51. MO @	8000.	408,000
BUYERS	1.0 X 51. MO @	5000.	255,000
PORT AGENT	1.0 X 15. MO @	3500.	52,500
CLERK	1.0 X 15. MO @	2500.	37,500
TEAMSTER	1.0 X 15. MO @	4000.	60,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING 813,000

SUBJECT: I-DAN EMBANKMENT & RELICT CHANNEL. (CONTRACT #7)
DATE: FEBRUARY 29, 1984

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 51. MO @	6000.	306,000
RECEIVING CLERK	2.0 X 51. MO @	2500.	255,000
RECORDS CLERK	1.0 X 51. MO @	2500.	127,500
TEAMSTER	1.0 X 51. MO @	4000.	204,000
FORK LIFT OPERATOR	2.0 X 51. MO @	3500.	357,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 1,249,500

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

SUBJECT: SUSI DAM & CANAL & RE-IT CH. (EL. INTRC #7) NO. 562 EB
SUBJECT: N-DAM EMBANKMENT & RELICT CHANNEL. (CONTRACT #7) ES BY OED
DATE: FEBRUARY 29, 1984 REV. L. LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTO	2.0 X 75. MOS @	600.	90,000
AUTO	2.0 X 70. MOS @	600.	84,000
AUTO	1.0 X 15. MOS @	600.	9,000
PICKUP	1.0 X 75. MOS @	600.	45,000
PICKUP	5.0 X 73. MOS @	600.	219,000
PICKUP	1.0 X 70. MOS @	600.	42,000
PICKUP	4.0 X 51. MOS @	600.	122,400
PICKUP	14.0 X 36. MOS @	600.	302,400
PICKUP	1.0 X 22. MOS @	600.	13,200
FLATBED	3.0 X 36. MOS @	600.	65,000
FLATBED	1.0 X 15. MOS @	600.	9,000
SERVICE TRUCKS	2.0 X 43. MOS @	800.	69,600
LOWBOYS	2.0 X 36. MOS @	800.	57,500
FORK LIFTS	1.0 X 51. MOS @	1000.	51,000
TRUCK CRANES	1.0 X 51. MOS @	15000.	765,000
MAN HAUL BUSES	3.0 X 51. MOS @	7800.	1,193,000
VANS	2.0 X 51. MOS @	800.	81,500
GULLWING TRUCK	2.0 X 51. MOS @	800.	81,500
LICENSE FEES & PERMITS	40.0 X 6. YRS @	60.	14,400

SUBTOTAL - B. VEHICLES 3,313,900

C. TRAVEL AND ALLOWANCES

OF CONTRACTS = 70/18 = 4

TRAVEL TO JOB

MARRIED (10 X 4)	40.0 X 3. TRP @	2000.	200,000
SINGLE (8 X 4)	32.0 X 1. TRP @	2000.	64,000

SHIPMENT OF PERSONAL GOODS

MARRIED	40. EA @	15000.	600,000
SINGLE	32. EA @	8000.	256,000

TRAVEL EXPENSE-JOB CONNECTED

MARRIED	40.0 X 3. TRP @	2000.	200,000
SINGLE	32.0 X 1. TRP @	2000.	64,000

SUBSISTENCE - MEN

72.0 X 1. MOS @	1500.	108,000
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TURN OVER FACTOR (10 %)

3. MEN @	30000.	90,000
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SUBTOTAL - C. TRAVEL AND ALLOWANCES 1,502,000

SUBJECT: 4-DAM EMBANKMENT & RELICT CHANNEL. (CONTRACT #7)
 DATE: FEBRUARY 29, 1984
 NO. 53.100
 BY DEB
 REV. L. LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

D. MISCELLANEOUS EXPENSES & MAINTENANCE

OFFICE SUPPLIES	70. MOS @	500.	35,000
OFFICE RENT (INCL TEMPORARY)	70. MOS @	2500.	175,000
OFFICE EQUIPMENT RENTAL	70. MOS @	1500.	105,000
ENGINEERING SUPPLIES	51. MOS @	1000.	51,000
ENGINEERING EQUIPMENT-RENTAL	51. MOS @	3000.	153,000
PHOTOS AND REPRODUCTIONS	51. MOS @	1000.	51,000
OUTSIDE ENGINEERING EXPENSE	1. LS	200000.	200,000
CONSULTANT EXPENSE	1. LS	200000.	200,000
WAREHOUSE & PURCHASE AIR	51. MOS @	12000.	610,000
LABOR RELATED SUPPLIES	51. MOS @	1000.	51,000
SAFETY & FIRST AID SUPPLIES	36. MOS @	11000.	396,000
BUILDING MAINTENANCE	70. MOS @	6000.	420,000
TELEPHONE & TELEX	51. MOS @	4500.	229,500
UTILITIES & JANITORIAL SERVICES	70. MOS @	10000.	700,000
SANITARY FACILITIES	51. MOS @	3000.	153,000
WATER SERVICES	51. MOS @	2000.	102,000
DRINKING WATER AND ICE	51. MOS @	2000.	102,000
RADIO COMMUNICATIONS	51. MOS @	7500.	382,500
LEGAL EXPENSE	1. LS	100000.	100,000
AUDITS	1. LS	100000.	100,000
HOME OFFICE TRAVEL-TO JOBSITE	70. TRP @	4000.	280,000
ENTERTAINMENT, DONA & CONTRIB.	51. MOS @	1000.	51,000
DUES, FEES, ADVERTISING & SUBS.	51. MOS @	100.	5,100
TEST MATERIALS	1. LS	10000.	10,000
FIRE PROTECTION	1. LS	25000.	25,000
PERMITS	1. LS	5000.	5,000
POSTAGE	51. MOS @	200.	10,200
QUARRY INVESTIGATION	1. LS	1000000.	1,000,000
WINTER OVER EXPENSE	19. EA	60000.	1,140,000
COMPUTER SERVICES	51. EA	7000.	357,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES 7,199,300

SUBJECT: Y-DAM EMBANKMENT & RELICT CHANNEL. (CONTRACT #7)
 DATE: FEBRUARY 29, 1934
 HARZA ENGINEERING COMPANY
 INDIRECT COSTS

NO. BY 53.1
 EY DEB
 REV. L LEVY

E. GENERAL PLANT

OFFICES (40 MEN X 150 SF/EA @ 70/SF)	1. LS	420000.	420,000
WAREHOUSE (20000 SF @ \$ 50/SF)	1. LS	1000000.	1,000,000
GENERAL YARD AND SITE GRADING	1. LS	600000.	600,000
HOSPITAL OR FIRST AID TRAILER	1. LS	30000.	30,000
INSPECTOR FIELD OFFICES	2. EA	30000.	60,000
FIELD OFFICES	2. EA	30000.	60,000
SHOWER AND LOCKERROOMS	1. LS	35000.	35,000
CHANGE HOUSE	1. LS	50000.	50,000
WORKMENS SHELTERS	4. EA	10000.	40,000
TOOL SHEDS	1. LS	10000.	10,000
WELDING AND BLACKSMITH SHOP	1. LS	50000.	50,000
MECHANIC SHOP	1. LS	750000.	750,000
TIRE REPAIR	1. LS	100000.	100,000
LIGHT&POWER INST&REM	1. LS	200000.	200,000
TELEPHONE INST&REM	1. LS	50000.	50,000
WATER SYSTEM INST&REM	1. LS	250000.	250,000
HEAT SYSTEM INST&REM	1. LS	500000.	500,000
SANITARY SYSTEM INST&REM	1. LS	100000.	100,000
FIRE PROTECTION	1. LS	50000.	50,000
RADIO COMMUNICATION	1. LS	50000.	50,000

SUBTOTAL - E. GENERAL PLANT 4,405,000

JEL US: - U A NO 63.
SUBJECT N-DAM EMBANKMENT & RELICT CHANNEL. (CONTRACT #7) ES BY OEB
DATE: FEBRUARY 29, 1984 REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

F. INSURANCE AND TAXES

INSURANCE - MAJOR EQUIPMENT
MINOR EQUIPMENT
BUILDERS RISK
TAXES - COUNTY TAX ON PLANT
STATE BUSINESS
CITY BUSINESS
MAJOR EQUIPMENT LICENSE FEES
UNITS

SUBTOTAL - F. INSURANCE AND TAXES 0

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @	1.0	% OF	0.	0
NEXT \$2,400,000 @	0.8	% OF	0.	0
NEXT \$2,500,000 @	0.6	% OF	0.	0
OVER \$5,000,000 @	0.5	% OF	0.	0
FIX VALUE	1.FIX		0.	0

SUBTOTAL - G. BONDS 0

GRAND TOTAL - INDIRECT COSTS 36,753,200

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JEC JS1
SUBJECT: GREGATE & CONCRETE SUPPLY (CONTRACT #8)
DATE: FEBRUARY 29, 1984

NO 63
EE BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	450,000
A.2 PERSONNEL - SUPERVISORY	2,143,000
A.3 PERSONNEL - ENGINEERING	162,000
A.4 PERSONNEL - OFFICE	252,000
A.5 PERSONNEL - PURCHASING	0
A.6 PERSONNEL - WAREHOUSING	190,000
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	426,000
C. TRAVEL AND ALLOWANCES	106,500
D. MISC & MAINTENANCE EXPENSES	1,442,000
E. GENERAL PLANT	2,010,000
F. INSURANCE AND TAXES	0
G. BONDS	0
GRAND TOTAL INDIRECT COSTS	7,190,000

PROJECT: DESIGN - WATKINS
SUBJECT: AGGREGATE & CONCRETE SUPPLY (CONTRACT #3)
DATE: FEBRUARY 29, 1964

NO. W-1563X103
ES' BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 18. MO @	10000.	180,000
GENERAL SUPERINTENDENT	1.0 X 18. MO @	9000.	162,000
SECRETARY	1.0 X 18. MO @	2500.	45,000
DRIVER	1.0 X 18. MO @	3500.	63,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 450,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - ELECTRICAL	2.0 X 18. MO @	8500.	306,000
SUPERINTENDENT - MECHANICAL	2.0 X 18. MO @	8500.	306,000
SUPERINTENDENT - PLANT	2.0 X 18. MO @	8500.	306,000
MASTER MECHANIC	1.0 X 18. MO @	8500.	153,000
SERVICE TRUCK DRIVER	2.0 X 18. MO @	6000.	216,000
TRUCK CRANE OPERATOR	2.0 X 18. MO @	5300.	190,800
" " OILER	2.0 X 18. MO @	8000.	288,000
BULLGANG CREW	4.0 X 18. MO @	4000.	288,000
DRIVERS	2.0 X 18. MO @	2500.	90,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 2,143,800

A.3 PERSONNEL - ENGINEERING

PLANT ENGINEER	1.0 X 18. MO @	6500.	117,000
CLERK	1.0 X 18. MO @	2500.	45,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 162,000

PROJECT: SECTION - Waterfall
SUBJECT: AGGREGATE & CONCRETE SUPPLY (CONTRACT #3)
DATE: FEBRUARY 29, 1984

NO. 51563X.05
EE' BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 18. MO @	10000.	180,000
GENERAL SUPERINTENDENT	1.0 X 18. MO @	9000.	162,000
SECRETARY	1.0 X 18. MO @	2500.	45,000
DRIVER	1.0 X 18. MO @	3500.	63,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 450,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - ELECTRICAL	2.0 X 18. MO @	8500.	306,000
SUPERINTENDENT - MECHANICAL	2.0 X 18. MO @	8500.	306,000
SUPERINTENDENT - PLANT	2.0 X 18. MO @	8500.	306,000
MASTER MECHANIC	1.0 X 18. MO @	8500.	153,000
SERVICE TRUCK DRIVER	2.0 X 18. MO @	6000.	216,000
TRUCK CRANE OPERATOR	2.0 X 18. MO @	5300.	190,800
" " OILER	2.0 X 18. MO @	8000.	288,000
BUILDING CREW	4.0 X 18. MO @	4000.	288,000
DRIVERS	2.0 X 18. MO @	2500.	90,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 2,143,800

A.3 PERSONNEL - ENGINEERING

PLANT ENGINEER	1.0 X 18. MO @	6500.	117,000
CLERK	1.0 X 18. MO @	2500.	45,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 162,000

PROJECT: USI - W. A. R.
SUBJECT: AGGREGATE & CONCRETE SUPPLY (CONTRACT #8)
DATE: FEBRUARY 29, 1984

NO. 353
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 18. MO @	6000.	108,000
TIMEKEEPERS	2.0 X 18. MO @	2500.	90,000
JANITORS	1.0 X 18. MO @	3000.	54,000

SUBTOTAL - A.4 PERSONNEL - OFFICE 252,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING 0

PROJECT: SUSTAIN - WAREHOUSE
SUBJECT: AGGREGATE & CONCRETE SUPPLY (CONTRACT #8)
DATE: FEBRUARY 29, 1984

NO. 1583X100
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 10. MO @	6000.	100,000
RECEIVING CLERK	2.0 X 10. MO @	2500.	90,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 190,000

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

PROJECT: SI
SUBJECT: GREGATE & CONCRETE SUPPLY (CONTRACT 3)
DATE: FEBRUARY 29, 1984

NO. 363
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

PICKUP	11.0 X 18. MOS @	600.	118,800
FLATBED	2.0 X 18. MOS @	600.	21,600
SERVICE TRUCKS	1.0 X 18. MOS @	800.	14,400
TRUCK CRANES	1.0 X 18. MOS @	15000.	270,000
LICENSE FEES & PERMITS	15.0 X 2. YRS @	60.	1,800

SUBTOTAL - B. VEHICLES 426,600

C. TRAVEL AND ALLOWANCES

* OF CONTRACTS = 10/10 = 1

TRAVEL TO JOB			
MARRIED	3.0 X 3. TRP @	2000.	15,000
SINGLE	2.0 X 1. TRP @	2000.	4,000
SHIPMENT OF PERSONAL GOODS			
MARRIED	3. EA @	15000.	45,000
SINGLE	2. EA @	8000.	16,000
TRAVEL EXPENSE-JOB CONNECTED			
MARRIED	3.0 X 3. TRP @	2000.	15,000
SINGLE	2.0 X 1. TRP @	2000.	4,000
SUBSISTENCE - MEN	5.0 X 1. TRP @	1500.	7,500
NO TURN OVER			

SUBTOTAL - C. TRAVEL AND ALLOWANCES 106,500

PROJECT: POSITIVE WATER
SUBJECT: AGGREGATE & CONCRETE SUPPLY (CONTRACT #0)
DATE: FEBRUARY 29, 1984

NO. 02563X103
EE BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES & MAINTENANCE

OFFICE SUPPLIES	18. MOS @	500.	9,000
OUTSIDE ENGINEERING EXPENSE	1. LS	50000.	50,000
CONSULTANT EXPENSE	1. LS	50000.	50,000
WAREHOUSE & PURCHASE AIR	18. MOS @	5000.	90,000
SAFETY & FIRST AID SUPPLIES	18. MOS @	3000.	54,000
BUILDING MAINTENANCE	18. MOS @	6000.	108,000
TELEPHONE & TELEX	18. MOS @	4500.	81,000
UTILITIES & JANITORIAL SERVICES	18. MOS @	10000.	180,000
SANITARY FACILITIES	18. MOS @	3000.	54,000
WATER SERVICES	18. MOS @	2000.	36,000
DRINKING WATER AND ICE	18. MOS @	2000.	36,000
RADIO COMMUNICATIONS	18. MOS @	7500.	135,000
LEGAL EXPENSE	1. LS	30000.	30,000
AUDITS	1. LS	20000.	20,000
HOME OFFICE TRAVEL-TO JOBSITE	18. TRP @	4000.	72,000
ENTERTAINMENT, DONA & CONTRIB.	18. MOS @	1000.	18,000
DUES, FEES, ADVERTISING & SUBS.	18. MOS @	100.	1,800
TEST MATERIALS	1. LS	36000.	36,000
FIRE PROTECTION	1. LS	10000.	10,000
PERMITS	1. LS	5000.	5,000
POSTAGE	1. LS	200.	200
WINTER OVER EXPENSE	4. MOS @	60000.	240,000
COMPUTER SERVICES	18. EA	7000.	126,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES 1,442,000

PROJECT: J81. W. 1111111
SUBJECT: AGGREGATE & CONCRETE SUPPLY (CONTRACT #3)
DATE: FEBRUARY 29, 1984

NO. 2553
ES BY OED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES (17 MEN X 150 SF/EA @ 70/SF)	1. LS	175000.	175,000
WAREHOUSE (4000 SF @ \$ 50/SF)	1. LS	200000.	200,000
GENERAL YARD AND SITE GRADING	1. LS	100000.	100,000
INSPECTOR FIELD OFFICES	1. EA	30000.	30,000
SHOWER AND LOCKER ROOMS	1. LS	30000.	30,000
MECHANIC SHOP	1. LS	175000.	175,000
LIGHT&POWER INST&REM	1. LS	150000.	150,000
TELEPHONE INST&REM	1. LS	50000.	50,000
WATER SYSTEM INST&REM	1. LS	250000.	250,000
HEAT SYSTEM INST&REM	1. LS	500000.	500,000
SANITARY SYSTEM INST&REM	1. LS	100000.	100,000
FIRE PROTECTION	1. LS	100000.	100,000
RADIO COMMUNICATION	1. LS	150000.	150,000

SUBTOTAL - E. GENERAL PLANT 2,010,000

PROJECT: SUSITANI - WATHANA
SUBJECT: AGGREGATE & CONCRETE SUPPLY (CONTRACT #8)
DATE: FEBRUARY 29, 1984

NO. 1563X103
EF BY OED
REV. L. LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

F. INSURANCE AND TAXES

INSURANCE - MAJOR EQUIPMENT
MINOR EQUIPMENT
BUILDERS RISK
TAXES - COUNTY TAX ON PLANT
STATE BUSINESS
CITY BUSINESS
MAJOR EQUIPMENT LICENSE FEES
UNITS

SUBTOTAL - F. INSURANCE AND TAXES 0

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @	1.0	% OF	0.	0
NEXT \$2,400,000 @	0.8	% OF	0.	0
NEXT \$2,500,000 @	0.6	% OF	0.	0
OVER \$5,000,000 @	0.5	% OF	0.	0
FIX VALUE	1.0	FIX	0.	0

SUBTOTAL - G. BONDS 0

GRAND TOTAL - INDIRECT COSTS 7,190,900

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SEC. 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

(CONTRACT #9)

NO. 1183A
ES BY OED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	675,000
A.2 PERSONNEL - SUPERVISORY	3,106,000
A.3 PERSONNEL - ENGINEERING	2,206,000
A.4 PERSONNEL - OFFICE	1,148,000
A.5 PERSONNEL - PURCHASING	333,500
A.6 PERSONNEL - WAREHOUSING	850,500
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	1,500,700
C. TRAVEL AND ALLOWANCES	690,000
D. MISC & MAINTENANCE EXPENSES	2,431,400
E. GENERAL PLANT	3,095,000
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	16,116,900

(CONTRACT #9) ES BY DEB
REV. L LEVY

REV. L. LEVY'

PROJECT MANAGER	1.0 X 27. MO @	10000.	270,000
GENERAL SUPERINTENDENT	1.0 X 27. MO @	9000.	243,000
SECRETARY	1.0 X 27. MO @	2500.	67,500
DRIVER	1.0 X 27. MO @	3500.	94,500

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - CONCRETE	2.0 X 18. MO @	8500.	306,000
SUPERINTENDENT - FORMS	2.0 X 18. MO @	8500.	306,000
SUPERINTENDENT - ELECTRICAL	2.0 X 18. MO @	8500.	306,000
SUPERINTENDENT - MECHANICAL	2.0 X 18. MO @	8500.	306,000
SERVICE TRUCK DRIVER	2.0 X 18. MO @	6000.	216,000
TRUCK CRANE OPERATOR	2.0 X 18. MO @	5300.	190,800
" " OILER	2.0 X 18. MO @	8000.	288,000
BUS DRIVERS	4.0 X 18. MO @	6000.	432,000
LOW BOY DRIVERS	2.0 X 18. MO @	6500.	234,000
BULLGANG	6.0 X 18. MO @	4000.	432,000
DRIVERS	2.0 X 18. MO @	2500.	90,000

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 27. MO @	9000.	243,000
OFFICE ENGINEER	1.0 X 27. MO @	6500.	175,500
FIELD ENGINEER	1.0 X 27. MO @	6500.	175,500
COST ENGINEER	1.0 X 27. MO @	6500.	175,500
PLANT ENGINEER	1.0 X 5. MO @	6500.	32,500
DRAFTSMAN	6.0 X 10. MO @	4000.	432,000
REPRODUCTION	1.0 X 10. MO @	3000.	54,000
PARTY CHIEF	2.0 X 10. MO @	6500.	234,000
INSTRUMENTMAN	2.0 X 10. MO @	6000.	216,000
ROD AND CHAIN MAN	4.0 X 10. MO @	5000.	350,000
SECRETARY	1.0 X 10. MO @	2500.	45,000
DRIVER	1.0 X 10. MO @	3500.	63,000

SUBTOTAL -	A.3 PERSONNEL - ENGINEERING	2,206,000
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PROJECT: U.S. AIR FORCE
SUBJECT: RAILWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #9)

NO. 563,
ES. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 27. MO @	6000.	162,000
ACCOUNTANTS	1.0 X 18. MO @	3500.	63,000
TIMEKEEPERS	4.0 X 18. MO @	2500.	180,000
PAYMASTER	1.0 X 18. MO @	2500.	45,000
CLERKS	2.0 X 18. MO @	2500.	90,000
STENOGRAPHERS	1.0 X 18. MO @	3000.	54,000
SWITCHBOARD RECEPTIONIST	1.0 X 18. MO @	3000.	54,000
JANITORS	2.0 X 18. MO @	3000.	108,000
COMPUTER SERVICE GROUP	2.0 X 56. MO @	3500.	392,000

SUBTOTAL - A.4 PERSONNEL - OFFICE 1,148,000

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 27. MO @	8000.	216,000
CLERKS	1.0 X 27. MO @	2500.	67,500
PORT AGENT	1.0 X 5. MO @	3500.	17,500
CLERK	1.0 X 5. MO @	2500.	12,500
TEAMSTER	1.0 X 5. MO @	4000.	20,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING 333,500

PROJECT: US1, MAR - U. S. MAR
SUBJECT: RAILWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #9)

NO. 13631.150
EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 27. MO @	6000.	162,000
RECEIVING CLERK	2.0 X 27. MO @	2500.	135,000
RECORDS CLERK	1.0 X 27. MO @	2500.	67,500
TEAMSTER	1.0 X 27. MO @	4000.	108,000
FUEL DISPATCHER	2.0 X 27. MO @	3500.	189,000
FORK LIFT OPERATOR	2.0 X 27. MO @	3500.	189,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 850,500

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

PROJECT: 0091.0000
SUBJECT: WILLWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #9)

NO. 563X.00
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTO	2.0 X 27. MOS @	600.	32,400
AUTO	1.0 X 5. MOS @	600.	3,000
PICKUP	11.0 X 27. MOS @	600.	170,200
PICKUP	12.0 X 10. MOS @	600.	129,600
PICKUP	1.0 X 5. MOS @	600.	3,000
FLATBED	1.0 X 5. MOS @	600.	3,000
SERVICE TRUCKS	1.0 X 27. MOS @	800.	21,600
LOWBOYS	1.0 X 27. MOS @	800.	21,600
FORK LIFTS	1.0 X 27. MOS @	1000.	27,000
TRUCK CRANES	1.0 X 27. MOS @	15000.	405,000
MAN HAUL BUSES	3.0 X 27. MOS @	7000.	630,000
VANS	2.0 X 27. MOS @	800.	43,200
BULLDOG TRUCK	1.0 X 27. MOS @	800.	21,600
LICENSE FEES & PERMITS	38.0 X 27. MOS @	60.	61,500

SUBTOTAL - B. VEHICLES 1,500,700

C. TRAVEL AND ALLOWANCES

* OF CONTRACTS = 23/10 = 2

TRAVEL TO JOB			
MARRIED (5 X 2)	10.0 X 3. TRP @	2000.	50,000
SINGLE (5 X 2)	10.0 X 1. TRP @	2000.	20,000
SHIPMENT OF PERSONAL GOODS			
MARRIED	20. EA @	15000.	300,000
SINGLE	20. EA @	8000.	160,000
TRAVEL EXPENSE-JOB CONNECTED			
MARRIED	10.0 X 3. TRP @	2000.	50,000
SINGLE	10.0 X 1. TRP @	2000.	20,000
SUBSISTENCE - MEN	20.0 X 1. MOS @	1500.	30,000
TURN OVER FACTOR (10 %)	2. MEN @	30000.	60,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 690,000

PROJECT: SUBSTANTIAL - WATANA
SUBJECT: RAILWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #9)

NO. 1353X.05
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES&MAINTENANCE

OFFICE SUPPLIES	27. MOS @	500.	13,500
OFFICE RENT (INCL TEMPORARY)	27. MOS @	2500.	67,500
OFFICE EQUIPMENT RENTAL	27. MOS @	1500.	40,500
ENGINEERING SUPPLIES	18. MOS @	1000.	18,000
ENGINEERING EQUIPMENT-RENTAL	18. MOS @	3000.	54,000
PHOTOS AND REPRODUCTIONS	18. MOS @	1000.	18,000
OUTSIDE ENGINEERING EXPENSE	1. LS	100000.	100,000
CONSULTANT EXPENSE	1. LS	100000.	100,000
WAREHOUSE & PURCHASE AIR	18. MOS @	12000.	216,000
LABOR RELATED SUPPLIES	18. MOS @	1000.	18,000
SAFETY & FIRST AID SUPPLIES	18. MOS @	11000.	198,000
BUILDING MAINTENANCE	23. MOS @	6000.	138,000
TELEPHONE & TELEX	27. MOS @	4500.	121,500
UTILITIES & JANITORIAL SERVICES	23. MOS @	10000.	230,000
SANITARY FACILITIES	18. MOS @	3000.	54,000
WATER SERVICES	18. MOS @	2000.	36,000
DRINKING WATER AND ICE	18. MOS @	2000.	36,000
RADIO COMMUNICATIONS	18. MOS @	7500.	135,000
LEGAL EXPENSE	1. LS	100000.	100,000
AUDITS	1. LS	100000.	100,000
HOME OFFICE TRAVEL-TO JOBSITE	23. TRP @	4000.	92,000
ENTERTAINMENT, DONA & CONTRIB.	18. MOS @	1000.	18,000
DUES, FEES, ADVERTISING & SUBS.	18. MOS @	100.	1,800
TEST MATERIALS	1. LS	35000.	35,000
FIRE PROTECTION	1. LS	20000.	20,000
PERMITS	1. LS	5000.	5,000
POSTAGE	23. MOS @	200.	4,600
WINTER OVER EXPENSE	5. EA	60000.	300,000
COMPUTER SERVICES	23. EA	7000.	161,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES

2,431,400

PROJECT 7-391 - W. 10001
SUBJECT: RAILWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #2)

NO. 1363
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES (33 MEN X 150 SF/EA @ 70/SF)	1. LS	350000.	350,000
WAREHOUSE (6000 SF @ \$ 50/SF)	1. LS	300000.	300,000
GENERAL YARD AND SITE GRADING	1. LS	500000.	500,000
HOSPITAL OR FIRST AID TRAILER	1. LS	30000.	30,000
INSPECTOR FIELD OFFICES	2. EA	30000.	60,000
FIELD OFFICES	2. EA	30000.	60,000
SHOWER AND LOCKER ROOMS	1. LS	35000.	35,000
CHANGE HOUSE	1. LS	50000.	50,000
WORKMEN'S SHELTERS	2. EA	10000.	20,000
TOOL SHEDS	1. LS	20000.	20,000
WELDING AND BLACKSMITH SHOP	1. LS	50000.	50,000
MECHANIC SHOP	1. LS	350000.	350,000
TIRE REPAIR	1. LS	20000.	20,000
LIGHT&POWER INST&REM	1. LS	200000.	200,000
TELEPHONE INST&REM	1. LS	50000.	50,000
WATER SYSTEM INST&REM	1. LS	150000.	150,000
HEAT SYSTEM INST&REM	1. LS	500000.	500,000
SANITARY SYSTEM INST&REM	1. LS	200000.	200,000
FIRE PROTECTION	1. LS	100000.	100,000
RADIO COMMUNICATION	1. LS	50000.	50,000

SUBTOTAL - E. GENERAL PLANT

3,095,000

PROJECT: CUST - L. MA
SUBJECT: WILLWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #9)

NO. 1563.100
EE BY OCB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

F. INSURANCE AND TAXES

INSURANCE - MAJOR EQUIPMENT
MINOR EQUIPMENT
BUILDERS RISK
• TAXES - COUNTY TAX ON PLANT
STATE BUSINESS
CITY BUSINESS
MAJOR EQUIPMENT LICENSE FEES
UNITS

SUBTOTAL - F. INSURANCE AND TAXES 0

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @	1.0	% OF	0.	0
NEXT \$2,400,000 @	0.0	% OF	0.	0
NEXT \$2,500,000 @	0.6	% OF	0.	0
OVER \$5,000,000 @	0.5	% OF	0.	0
FIX VALUE	1.FIX		0.	0

SUBTOTAL - G. BONDS 0

GRAND TOTAL - INDIRECT COSTS 16,116,900

10

SUBJECT: LIFTING & HOIST
DATE: FEBRUARY 29, 1984

(CONTRACT #10)

HARZA ENGINEERING COMPANY
INDIRECT COSTS

NO. 1562
EST. BY DEB
REV. L. LEVY

SUMMARY OF INDIRECT COSTS
=====

A.1 PERSONNEL - ADMINISTRATIVE	133,000
A.2 PERSONNEL - SUPERVISORY	735,500
A.3 PERSONNEL - ENGINEERING	416,500
A.4 PERSONNEL - OFFICE	77,000
A.5 PERSONNEL - PURCHASING	52,500
A.6 PERSONNEL - WAREHOUSING	101,500
A.7 PERSONNEL - MEDICAL SAFETY	0
D. VEHICLES	231,000
C. TRAVEL AND ALLOWANCES	33,000
D. MISC & MAINTENANCE EXPENSES	440,400
E. GENERAL PLANT	1,870,000
F. INSURANCE AND TAXES	0
G. BONDS	0
-----	-----
GRAND TOTAL INDIRECT COSTS	4,091,200

PROJECT: USI
SUBJECT: TIES & MOIST
DATE: FEBRUARY 29, 1964

(CONTRACT #10)

NO. 5637
BY DEU
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X	7. MO @	10000.	70,000
GENERAL SUPERINTENDENT	1.0 X	7. MO @	9000.	63,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 133,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - RIGGING	2.0 X	7. MO @	8500.	119,000
SUPERINTENDENT - ELECTRICAL	2.0 X	7. MO @	8500.	119,000
SUPERINTENDENT - MECHANICAL	2.0 X	7. MO @	8500.	119,000
TRUCK CRANE OPERATOR	2.0 X	7. MO @	3500.	74,000
" " OILER	2.0 X	7. MO @	8000.	112,000
FLATBED	2.0 X	7. MO @	6000.	84,000
LOW BOY DRIVERS	2.0 X	7. MO @	6500.	91,000
BUS DRIVER	1.0 X	7. MO @	2500.	17,500

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 735,500

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X	7. MO @	9000.	63,000
FIELD ENGINEER	1.0 X	7. MO @	6500.	45,500
PLANT ENGINEER	1.0 X	7. MO @	6500.	45,500
DRAFTSMAN	3.0 X	7. MO @	4000.	84,000
REPRODUCTION	1.0 X	7. MO @	3000.	21,000
PARTY CHIEF	1.0 X	7. MO @	6500.	45,500
INSTRUMENTMAN	1.0 X	7. MO @	6000.	42,000
ROD AND CHAIN MAN	2.0 X	7. MO @	5000.	70,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 416,500

PROJECT: JUSTINA - WATANA

SUBJECT: LIFTES & HOIST

DATE: FEBRUARY 29, 1984

(CONTRACT #10)

HARZA ENGINEERING COMPANY

INDIRECT COSTS

NO. 51563X100

ES BY OED

REV. L LEVY

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 7. MO @	6000.	42,000
BOOKKEEPERS	1.0 X 7. MO @	2500.	17,500
TIMEKEEPERS	1.0 X 7. MO @	2500.	17,500

SUBTOTAL - A.4 PERSONNEL - OFFICE 77,000

A.5 PERSONNEL - PURCHASING

EXPEDITOR	1.0 X 7. MO @	5000.	35,000
CLERK	1.0 X 7. MO @	2500.	17,500

SUBTOTAL - A.5 PERSONNEL - PURCHASING 52,500

PROJECT US10 - WAREHOUSE

SUBJECT: LIFTING & HOIST
DATE: FEBRUARY 29, 1984

(CONTRACT #10)

HARZA ENGINEERING COMPANY
INDIRECT COSTS

NO. 563
EST. BY DEB
REV. L LEVY

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 7. MO @	6000.	42,000
RECEIVING CLERK	1.0 X 7. MO @	2500.	17,500
RECORDS CLERK	1.0 X 7. MO @	2500.	17,500
FORK LIFT OPERATOR	1.0 X 7. MO @	3500.	24,500

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 101,500

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

PROJECT: JSI
SUBJECT: LIFES & HOIST
DATE: FEBRUARY 29, 1984

(CONTRACT #10)

NO. 1863
ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTO	1.0 X	7. MOS @	600.	4,200
PICKUP	13.0 X	7. MOS @	600.	54,500
LOWBOYS	1.0 X	7. MOS @	000.	5,600
FORK LIFTS	1.0 X	7. MOS @	1000.	7,000
TRUCK CRANES	1.0 X	7. MOS @	15000.	105,000
MAN HAUL DUSES	1.0 X	7. MOS @	7000.	54,500
LICENSE FEES & PERMITS	10.0 X	1. YRS @	00.	1,000

SUBTOTAL - B. VEHICLES 231,600

C. TRAVEL AND ALLOWANCES

* OF CONTRACTS = 1

TRAVEL TO JOB				
SINGLE	2.0 X	1. TRP @	2000.	4,000
SHIPMENT OF PERSONAL GOODS				
SINGLE	2.	EA @	8000.	16,000
TRAVEL EXPENSE-JOB CONNECTED				
SINGLE	2.0 X	1. TRP @	2000.	4,000
SUBSISTENCE - MEN	2.0 X	3. MOS @	1500.	9,000
NO TURN OVER				

SUBTOTAL - C. TRAVEL AND ALLOWANCES 33,000

ALSEC 851 W. 100
SUBJECT: LIFTES & HOIST
DATE: FEBRUARY 29, 1984

(CONTRACT #10)

NO. 253
ES BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES & MAINTENANCE

OFFICE SUPPLIES	7. MOS @	200.	1,400
ENGINEERING SUPPLIES	7. MOS @	1000.	7,000
ENGINEERING EQUIPMENT-RENTAL	7. MOS @	3000.	21,000
PHOTOS AND REPRODUCTIONS	7. MOS @	1000.	7,000
OUTSIDE ENGINEERING EXPENSE	1. LS	50000.	50,000
CONSULTANT EXPENSE	1. LS	30000.	30,000
WAREHOUSE & PURCHASE AIR	7. MOS @	6000.	42,000
SAFETY & FIRST AID SUPPLIES	7. MOS @	5000.	35,000
BUILDING MAINTENANCE	7. MOS @	6000.	42,000
TELEPHONE & TELEX	7. MOS @	4000.	28,000
UTILITIES & JANITORIAL SERVICES	7. MOS @	7000.	49,000
SANITARY FACILITIES	7. MOS @	2000.	14,000
WATER SERVICES	7. MOS @	500.	3,500
DRINKING WATER AND ICE	7. MOS @	200.	1,400
RADIO COMMUNICATIONS	7. MOS @	3000.	21,000
LEGAL EXPENSE	1. LS	10000.	10,000
AUDITS	1. LS	20000.	20,000
HOME OFFICE TRAVEL-TO JOBSITE	7. TRP @	2000.	14,000
ENTERTAINMENT, DONA & CONTRIB.	7. MOS @	1000.	7,000
DUES, FEES, ADVERTISING & SUBS.	7. MOS @	100.	700
TEST MATERIALS	1. LS	20000.	20,000
FIRE PROTECTION	1. LS	10000.	10,000
PERMITS	1. LS	5000.	5,000
POSTAGE	7. MOS @	200.	1,400

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES

440,400

PROJECT: JSI W. W. W.

SUBJECT: LIFTES & HOIST

DATE: FEBRUARY 29, 1984

(CONTRACT #10)

HARZA ENGINEERING COMPANY
INDIRECT COSTS

NO. 1253.111

ES BY OEB

REV. L LEVY

E. GENERAL PLANT

OFFICES

(13 MEN X 150 SF/EA @ 70/SF)

1. LS 140000. 140,000

WAREHOUSE

(8000 SF @ \$ 50/SF)

1. LS 400000. 400,000

GENERAL YARD AND SITE GRADING

1. LS 750000. 750,000

INSPECTOR FIELD OFFICES

1. EA 30000. 30,000

FIELD OFFICES

1. EA 30000. 30,000

SHOWER AND LOCKERROOMS

1. LS 20000. 20,000

CHANGE HOUSE

1. LS 20000. 20,000

WORKMENS SHELTERS

1. EA 20000. 20,000

TOOL SHEDS

1. LS 10000. 10,000

PIPEFITTERS SHOP & PLUMBERS

1. LS 50000. 50,000

RIGGERS LOFT

1. LS 150000. 150,000

WELDING AND BLACKSMITH SHOP

1. LS 100000. 100,000

RADIO COMMUNICATION

1. LS 150000. 150,000

SUBTOTAL - E. GENERAL PLANT

1,870,000

PROJECT: POSITIVE Upland
SUBJECT: LIFTES & HOIST
DATE: FEBRUARY 29, 1984

(CONTRACT #10)

NO. 1333X103
ES BY OED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

F. INSURANCE AND TAXES

INSURANCE - MAJOR EQUIPMENT
MINOR EQUIPMENT
BUILDERS RISK
TAXES - COUNTY TAX ON PLANT
STATE BUSINESS
CITY BUSINESS
MAJOR EQUIPMENT LICENSE FEES
UNITS

SUBTOTAL - F. INSURANCE AND TAXES 0

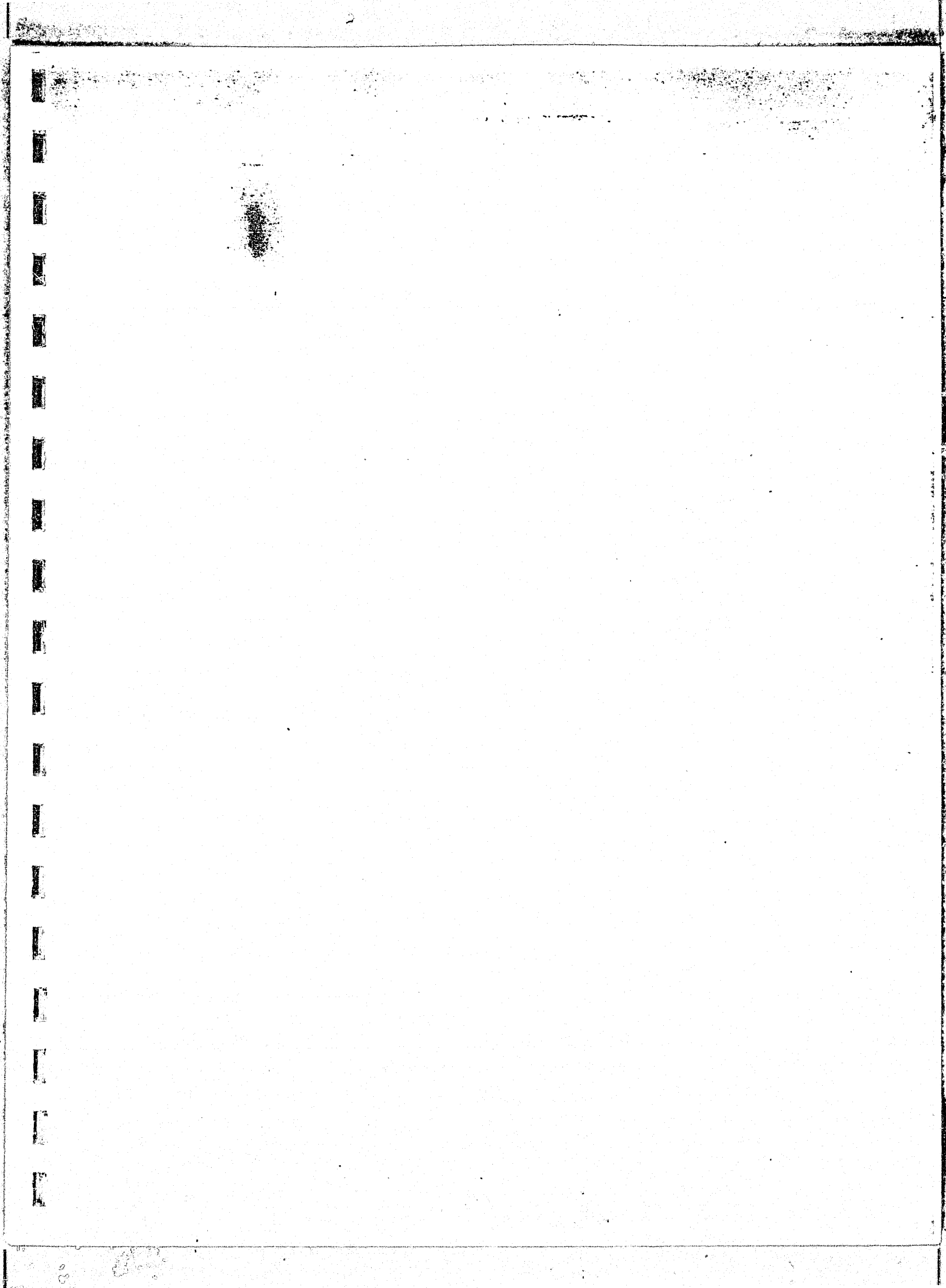
G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @	1.0	% OF	0.	0
NEXT \$2,400,000 @	0.8	% OF	0.	0
NEXT \$2,500,000 @	0.6	% OF	0.	0
OVER \$5,000,000 @	0.5	% OF	0.	0
FIX VALUE	1.0	FIX	0.	0

SUBTOTAL - G. BONDS 0

GRAND TOTAL - INDIRECT COSTS 4,091,280



PROJECT: JUS1 - LARNA
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 27, 1984

NO. 1363-103
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A. AMBULANCE SERVICE	12,397,200
B. AIRPORT SERVICE	3,638,000
C. POWDER HOUSE	2,921,450
D. CAP HOUSE	23,500
E. CONSTRUCTION LIGHTING	12,400,000
F. SNOW REMOVAL	4,060,000
G. FUEL STORAGE & DISPATCHING	2,334,000
H. HAUL ROADS	22,000,000

GRAND TOTAL INDIRECT COSTS	60,590,150

ROJ SU - ANA
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 27, 1984

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EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

ROUNDED TOTAL

A. AMBULANCE SERVICE

ASSUME THAT THE AMBULANCE SERVICE
FOR ALL CONTRACTS CAN BE SUBCON-
TRACTED TO A CONCESSIONARY.
ALLOW ONE AMBULANCE FULLY STAFFED
PER 2000 WORKERS AND AN AVERAGE
OF 5000 INHABITANTS IN THE CONS-
TRUCTION SITE.

USE 2.5 AMBULANCE
STAFF 1-DRIVER
2-PARAMEDICS

LABOR (A) SUMMER

HRS = 24 X 30 X 7 X 7 = 35280

NO. OF MEN = 3 X 2.5 = 7.5

7.5 X 35. \$/HR 35280. 9,250,000

(B) WINTER

HRS = 24 X 30 X 5 X 6 = 21600

NO. OF MEN = 3.0

3.0 X 35. \$/HR 21600. 2,268,000

EQUIPMENT

PURCHASE

4. UNITS 110000. 440,000

OPERATION (10%)

40. \$/HR 10980. 439,200

SUBTOTAL - A. AMBULANCE SERVICE

12,397,200

RD. SL. A - ANA
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 27, 1984

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EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

ROUNDED TOTAL

B. AIRPORT SERVICE

DURING THE SUMMER MONTHS
2-6 SEATER AIRCRAFT WILL BE
PROVIDED FOR 7 MOS/YEAR
FOR 7 YEARS. DURING THE
WINTER MONTHS (5 MOS/YR) ONE
AIRCRAFT WILL BE PROVIDED FOR
6 YEARS. THE AIRCRAFT WILL
BE ASSUMED TO BE RENTED
AT \$ 150/HR WITH AN AVERAGE
FLIGHT TIME OF 70 HRS/MO

A) SUMMER

HRS = 70 X 7 X 7 = 3430

\$/PLANE = 3430 X 150

2. PL @ 514500. 1,029,000

B) WINTER

HRS = 70 X 5 X 6 = 2100

\$/PLANE = 2100 X 150

1. PL @ 315000. 315,000

TWO PILOTS IN DAY TIME
ONLY.

A) SUMMER

\$/YR = 260 HR/MO X 7 @ 50

2.0 X 7. YRS @ 91000. 1,274,000

B) WINTER

\$/YR = 260 HR/MO X 5 @ 50

1.0 X 6. YRS @ 65000. 390,000

SERVICE CREW (3 CLERKS)

\$ 2500/MO X 12 MOS

3.0 X 7. YRS @ 30000. 630,000

SUBTOTAL - B. AIRPORT SERVICE

3,638,000

RDJ SU A - ANA
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 27, 1984

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EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

ROUNDED TOTAL

C. POWDER HOUSE

OPEN CUT EXCAVATION

BCY = 6,180,000

QUARRY

BCY = 14,760,000

LBS = 20,940,000

UNDERGROUND

LBS = 9,600,000

LBS/YR = 5,090,000

LBS/MO = 727,145

STORAGE CAPACITY LBS = 1450000

CF = 1450000/60 LBS/CF

= 24,300 CF

SF = 24,300/7 = 3,500

REQD SF = 3,500 X 1.20 = 4155

50. \$/SF

4155.

207,800

EXCAVATION (6' DEEP)

BCY = 4155X6/27 = 923

10. \$/CY

923.

9,250

SERVICING CREW

1 - POWDER DISPATCHER

2 - CLERKS

3 MEN X 2 SHIFTS

HRS = 10 X 26 X 7 MO X 7 YR

= 12740 HRS @ \$ 35/HR

6.0 X 35. \$/HR

12740.

2,675,000

PICK UP

NO OF MONTHS = 7 X 7 = 49.

1.0 X 49. MO @

600.

29,400

SUBTOTAL - C. POWDER HOUSE

2,921,450

D. CAP HOUSE

THE CAP HOUSE WILL BE ASSUMED
TO BE 1/10 OF THE POWDER
HOUSE SIZES

50. \$/SF

450.

22,500

EXCAVATION (6' DEEP)

BCY = 450X6/27 = 100

10. \$/CY

100.

1,000

SUBTOTAL - D. CAP HOUSE

23,500

RD. SL. A. ANF
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 27, 1984

15.33
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

ROUNDED TOTAL

E. CONSTRUCTION LIGHTING

THE CONSTRUCTION AREA IS
APPROXIMATELY

SF = 28,000,000

LIGHTING REQUIREMENTS

(PARKING LOT

DOWNTOWN AREA)

0.40 WATTS/SF

REQD KW = 11200

AT \$ 0.135 /KW-HR

HRS = 5 HR/DAY X 26 X 7 X 7

= 6370

\$/HR = 11200 X .135 = 1512

TOTAL COST

\$ = 1512 \$/HR X 6370 HRS

1. LS 9631440. 9,630,000

LIGHTING MAINTENANCE

CREW (3 MEN)

3.0 X 35. \$/HR 12740. 1,330,000

STADIUM LIGHTS WILL BE
PROVIDED DURING THE CONST-
RUCTION AT A COST OF
\$ 120,000/LIGHT INCLUDING
ERECTION, FOUNDATION & WIRING
NUMBER AND LOCATION OF LIGHTS
ARE AS FOLLOWS:

* LOCATION

2- EMBANKMENTS

2- QUARRY

4- ABUTMENTS

2- SPILLWAY

1- GRAVEL PIT

1- IMPERVIOUS PIT

12- STADIUM LIGHTS

12. LGT @ 120000. 1,440,000

SUBTOTAL - E. CONSTRUCTION LIGHTING

12,400,000

PROJECT: SOUTHERN ALABAMA
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 27, 1984

REV. 1000.003
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

ROUNDED TOTAL

F. SNOW REMOVAL

THE SNOW REMOVAL WILL BE PERFORMED USING AN 8 MAN CREW FOR 5 MOS/YR, 8HRS/DAY. THIS CREW IS COMPOSED OF FOUR CAT OPERATORS AND 4 MEN ON MOTOR PATROLS. IT WILL BE ASSUMED THAT 50 TONS OF SALT WILL BE USED PER DAY.

LABOR:

HRS = 8 X 15 D/MO X 5 X 7
= 4200 HRS

8.0 X 35. \$/HR 4200. 1,176,000

EQUIPMENT:

CATS
MOTOR PATROL

4.0 X 7. YR @ 69000. 1,932,000
4.0 X 6. YR @ 30000. 720,000

MATERIAL:

SALT:

TONS = 50 X 15 X 5 X 7
= 26250. SAY (26000)

40. \$/TON 26000. 1,040,000

SUBTOTAL - F. SNOW REMOVAL 4,868,000

G. FUEL STORAGE & DISPATCHING

LABOR:

2 MEN X 20 X 26 X 7 X 7

35. \$/HR 50960. 1,784,000

PLANT & EQUIP :

STORAGE = 2000 TONS/MO
ERECTION
PUMPS (4)
GREASE RACK & ETC.

60. \$/TON 2000. 120,000
1. LS 150000. 150,000
4. \$/EA 20000. 80,000
1. LS 200000. 200,000

SUBTOTAL - G. FUEL STORAGE & DISPATCHING 2,334,000

PRO S IA AN
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 27, 1984

HARZA ENGINEERING COMPANY
INDIRECT COSTS

11 03
EST. BY OEB
REV. L LEVY

ROUNDED TOTAL

H. HAUL ROADS

APPROXIMATELY 10 MILES
OF HAUL ROADS ARE REQUIRE.
THE COST WAS DEVELOPED IN
DETAIL BUT IS NOT CONTAINED
IN THIS REPORT.

\$/MILE = \$ 2,200,000

10. MI @ 2200000. 22,000,000

SUBTOTAL - H. HAUL ROADS 22,000,000

GRAND TOTAL - INDIRECT COSTS ROUNDED TOTAL 60,620,150

PRO S IA AN
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 27, 1984

EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

ROUNDED TOTAL

H. HAUL ROADS

APPROXIMATELY 10 MILES
OF HAUL ROADS ARE REQUIRE.
THE COST WAS DEVELOPED IN
DETAIL BUT IS NOT CONTAINED
IN THIS REPORT.

\$/MILE= \$ 2,200,000

10. MI @ 2200000. 22,000,000

SUBTOTAL - H. HAUL ROADS

22,000,000

GRAND TOTAL - INDIRECT COSTS

ROUNDED TOTAL

60,620,150

LABOR RATES

LABOR RATES

SUSITNA - LABOR RATES

PAGE 1 OF 2

LCODE	8X5	8X6	8X7	10X5	10X6	TITLE
0	0.	35.2	0.	0.	34.1	LABOR FOREMAN
1	0.	32.5	0.	0.	31.3	COMMON LABORER
2	0.	32.9	0.	0.	31.7	AIR TOOL OP
3	0.	33.4	0.	0.	32.2	CHUCK TENDER
4	0.	33.7	0.	0.	32.5	POWDERMAN HELPR
5	0.	34.	0.	0.	32.9	DRILLER
6	0.	34.4	0.	0.	33.2	POWDERMAN
7	0.	36.2	0.	0.	35.1	BLASTER
10	0.	40.	0.	0.	39.	EQUIP FOREMAN
11	0.	38.9	0.	0.	37.9	CL A EQUIP OP
12	0.	37.	0.	0.	36.	HVY EQUIP OP
13	0.	36.2	0.	0.	35.2	LIGHT EQUIP OP
14	0.	35.5	0.	0.	34.4	OILER
15	0.	33.8	0.	0.	32.6	PUMP OPERATOR
16	0.	41.1	0.	0.	36.	HVY DUTY MECH
20	0.	40.2	0.	0.	39.2	TEAMSTR FOREMAN
21	0.	38.8	0.	0.	37.7	HD DRIVR(+BOCY)
23	0.	37.5	0.	0.	36.4	HD DRIVR(-BOCY)
24	0.	35.4	0.	0.	34.3	LD DRIVER
30	0.	40.2	0.	0.	39.4	CARP FOREMAN
31	0.	36.4	0.	0.	35.4	CARPENTER
32	0.	32.9	0.	0.	31.7	CARPENTER HELPR
35	0.	35.9	0.	0.	34.8	PILE DRIVER
36	0.	39.6	0.	0.	38.7	PILE DRIVER FMAN
40	0.	42.2	0.	0.	41.4	IRONWRKR FMAN
41	0.	39.3	0.	0.	38.4	IRONWORKER
50	0.	44.9	0.	0.	44.1	ELEC FOREMAN
51	0.	42.1	0.	0.	41.2	ELECTRICIAN
60	0.	42.3	0.	0.	41.5	PIPEFTR FOREMAN
61	0.	39.1	0.	0.	38.2	PIPEFITTER
70	0.	37.2	0.	0.	36.2	FIN FOREMAN
71	0.	34.5	0.	0.	33.4	FINISHER
72	0.	35.1	0.	0.	33.9	FINISHER (MACH)
100	0.	30.7	0.	0.	30.1	SHIFTER (TUN)
101	0.	35.	0.	0.	33.9	LABORER (TUN)

SUSITNA - LADOR RATES

PAGE 2 OF 2

LCODE	8X5	8X6	8X7	10X5	10X6	TITLE
160	0.	45.9	0.	0.	45.2	PIPFTR FMN(TUN)
102	0.	35.5	0.	0.	34.9	CH TENDER (TUN)
103	0.	36.	0.	0.	35.6	MINER
104	0.	36.4	0.	0.	36.	POWDERMAN (TUN)
109	0.	38.	0.	0.	36.9	TUNNEL LAB FMAN
112	0.	40.	0.	0.	39.1	HVY EQ OP (TUN)
113	0.	39.1	0.	0.	38.2	LT EQ OP (TUN)
114	0.	38.3	0.	0.	37.3	OILER (TUN)
115	0.	36.5	0.	0.	35.4	PUMP OP (TUN)
116	0.	44.4	0.	0.	39.1	TUNNEL MECHANIC
123	0.	40.4	0.	0.	39.4	HD DRIVER (TUN)
124	0.	38.1	0.	0.	37.	LD DRIVER (TUN)
130	0.	43.6	0.	0.	42.9	CARP FMAN (TUN)
131	0.	39.5	0.	0.	38.6	CARPENTER (TUN)
132	0.	35.5	0.	0.	34.4	CARP HELPR(TUN)
140	0.	45.7	0.	0.	45.	IRONWKR FMN(TUN)
141	0.	42.5	0.	0.	41.7	IRONWORKER(TUN)
150	0.	48.5	0.	0.	47.9	ELEC FMAN (TUN)
151	0.	45.5	0.	0.	44.7	ELECTRICN (TUN)
161	0.	42.4	0.	0.	41.5	PIPEFITTER(TUN)
170	0.	40.3	0.	0.	39.4	FIN FOREMN(TUN)
171	0.	37.3	0.	0.	36.2	FINISHER (TUN)
172	0.	38.7	0.	0.	36.9	FIN MACH (TUN)
8	31.3	31.3	31.3	31.3	31.3	FLAGMAN
9	31.3	31.3	31.3	31.3	31.3	GRADE CHECKERS
180	34.1	34.1	34.1	34.1	34.1	DUMP FOREMAN
181	31.3	31.3	31.3	31.3	31.3	DUMP MAN
185	31.3	31.3	31.3	31.3	31.3	SPOTTER
200	37.9	37.9	37.9	37.9	37.9	DRAWLINE OPERAT
201	36.	36.	36.	36.	36.	BELT LOADER OPE
202	39.	39.	39.	39.	39.	REC PLANT FORMN
203	39.	39.	39.	39.	39.	SCRN PLANT FORM
204	36.	36.	36.	36.	36.	REC STAT OPER
205	36.	36.	36.	36.	36.	SCRN STAT OPER
206	36.	36.	36.	36.	36.	CONCR AGG OPER
207	36.	36.	36.	36.	36.	SHED WASH OPER
208	39.	39.	39.	39.	39.	PLANT FORMN
209	36.	36.	36.	36.	36.	PLANT OPERATOR
210	36.	36.	36.	36.	36.	FEEDER OPERATOR

EQUIPMENT RATES

EQUIPMENT RATES

HARZA ENGINEERING COMPANY
EQUIPMENT DATA FOR ESTIMATING
ADJUSTED RATES ARE FOR SUSIINA
ADJ FACTORS: DEPR 1.10 LABOR 2.50 PARTS 1.25 G.E.C 1.25 FUEL 1.27 LUBE 1.27 ELEC 0.00 CRG SECTION 3 PNEUMATIC EQUIP & PUMPS JAN 1981

PAGE 1

RATES ADJUSTED TO JAN 82 PRICE LEVELS BY 10.0% INFLATION FACTOR
BASIC COST FACTORS - LABOR 15.04/HR ELECTRIC POWER 0.050/KWH
DIESEL FUEL 1.06/GAL LUBE OIL 2.40/GAL
HOURLY RATE
CRG ADJUSTED HOURLY RATES

ITEM NUMBER	DESCRIPTION	HP	TONS	SHIP CUYF	USHA5E JAN 82	ADJUSTED	DEPR	LABOR	PARTS	G.E.C	FUEL	LUBE	ELEC
PORTABLE COMPRESSORS													
3101.	DIESEL ROT.SCREW-150 CFM	52	1	7	6.84	10.07	1.45	3.32	1.86	0.23	2.79	0.41	0.00
3103.	" - 325 CFM	114	4	18	14.65	21.53	3.07	7.05	3.93	0.43	6.17	0.88	0.00
3106.	" - 600 CFM	213	10	26	27.29	40.36	5.54	13.60	7.60	0.47	11.51	1.64	0.00
3112.	" - 1200 CFM	427	18	45	47.47	69.39	8.88	21.70	12.13	0.52	23.08	3.09	0.00
STATIONARY COMPRESSORS													
3212.	1250 CFM	250	0	0	13.05	6.25	3.06	1.95	0.87	0.00	0.00	0.37	0.00
3215.	1500 CFM	300	0	0	15.45	7.20	3.53	2.22	1.00	0.00	0.00	0.44	0.00
3218.	1800 CFM	350	0	0	18.22	8.67	4.26	2.67	1.21	0.00	0.00	0.52	0.00
3220.	2070 CFM	400	0	0	20.42	9.33	4.60	2.85	1.31	0.00	0.00	0.57	0.00
PAVEMENT BREAKER													
3308.	STANDARD 80-90 LBS	0	1	0	0.82	0.62	0.22	0.25	0.14	0.00	0.00	0.01	0.00
3309.	SINKER DRILL-WET-65 LBS	0	1	0	0.68	1.00	0.35	0.40	0.23	0.00	0.00	0.01	0.00
3310.	AIR LEG DRILL 3" PISTON	0	1	1	1.07	1.57	0.58	0.62	0.34	0.00	0.00	0.03	0.00
3311.	STOPLER-WET-MEDIUM (75 LB	0	1	1	1.32	1.96	0.68	0.80	0.45	0.00	0.00	0.03	0.00
3312.	4-1/2" DRIFTER W/FEED	1	3	7	8.09	12.09	4.11	5.07	2.68	0.00	0.00	0.22	0.00
SUBMERSIBLE PUMPS													
3404.	4 " (400 GPM)	25	0	1	3.05	3.21	0.75	1.68	0.74	0.00	0.00	0.05	0.00
3406.	6 " (1000 GPM)	60	0	1	5.29	4.41	1.02	2.30	1.01	0.00	0.00	0.08	0.00
3408.	8 " (1600 GPM)	95	0	1	7.28	5.26	1.22	2.75	1.20	0.00	0.00	0.09	0.00

HARZA ENGINEERING COMPANY
EQUIPMENT DATA FOR ESTIMATING

PAGE 2

RATES ADJUSTED TO JAN 82 PRICE LEVELS BY 10.0% INFLATION FACTOR

BASIC COST FACTORS - LABOR 15.04/HR ELECTRIC POWER 0.050/KWH

ADJUSTED RATES ARE FOR SUSITNA

DIESEL FUEL 1.06/GAL LUBE OIL 2.40/GAL

ADJ FACTORS: DEPR 1.10 LABOR 2.50 PARTS 1.25 G.E.C 1.25 FUEL 1.27 LUBE 1.27 ELEC 0.00 CRG SECTION 9 TRACTORS & LOADERS

APR 1981

WEIGHT

HOURLY RATE

CRG ADJUSTED HOURLY RATES

ITEM NUMBER	DESCRIPTION	HP	TONS	CUBE	SHIP JAN 82	USBASE JAN 82	ADJUSTED	DEPR	LABOR	PARTS	G.E.C	FUEL	LUBE	ELEC
TRACTORS W/DOZER BLADE														
9103.	CAT D-3B LCP	65	7	11	12.55		17.96	4.40	5.60	2.97	0.59	3.72	0.69	0.00
9104.	D-4E (27X1)	75	9	14	15.11		21.77	5.19	7.02	3.71	0.74	4.29	0.83	0.00
9105.	D-5B (23X)	105	12	18	21.84		31.51	7.59	10.25	5.41	1.07	6.02	1.17	0.00
9106.	D-6D (4X)	140	16	23	29.33		42.71	9.57	14.40	7.60	1.52	8.01	1.61	0.00
9107.	D-7G (92V)	200	22	33	39.50		57.48	13.04	19.35	10.14	2.08	10.62	2.25	0.00
9117.	D7 W/RIPPER	200	24	36	42.72		62.38	14.38	21.47	11.25	2.30	10.62	2.36	0.00
9108.	D8K (77V)	300	35	52	53.57		77.90	16.64	25.82	13.56	2.79	15.93	3.16	0.00
9118.	D8K W/RIPPER	300	40	59	58.53		85.44	18.69	29.05	15.29	3.13	15.93	3.35	0.00
9109.	D9H	410	47	70	69.89		102.33	20.62	34.78	18.17	3.81	20.62	4.33	0.00
9119.	D9 W/RIPPER MOTOR GRADERS	410	57	84	78.58		115.57	24.23	40.50	21.17	4.39	20.62	4.65	0.00
9212.	CAT 12G	135	14	51	24.58		36.18	7.67	12.75	6.73	0.81	6.77	1.46	0.00
9214.	CAT 14G	180	20	70	35.16		51.59	10.81	17.90	9.41	2.98	8.55	1.94	0.00
9216.	CAT 16G WHEEL LOADERS	250	27	94	44.62		66.35	11.15	23.77	12.41	5.50	10.83	2.68	0.00
9348.	CASE 480C CK(W/BHDE)	7	43	4	7	8.72	12.63	3.08	4.20	2.27	0.47	2.17	0.43	0.00
9358.	CASE 580C CK(W/BHDE)	7	55	5	8	11.19	16.19	4.08	5.40	2.90	0.47	2.77	0.57	0.00
9391.	CAT 910	1	65	7	10	12.93	18.59	4.57	5.97	3.11	0.98	3.28	0.67	0.00
9392.	CAT 920	1	80	8	12	17.10	24.69	6.21	8.17	4.27	1.11	4.04	0.88	0.00
9393.	930		100	9	13	20.16	29.00	7.15	9.35	4.37	1.53	5.04	1.05	0.00
9395.	950	2	130	13	19	29.72	42.82	10.03	13.83	7.25	3.85	6.44	1.45	0.00
9396.	9660	1.2	200	16	24	35.48	50.68	11.25	15.40	8.04	5.84	8.42	1.73	0.00
9380.	980C	5	260	26	38	40.08	57.37	13.08	17.73	9.09	5.84	9.50	2.13	0.00
9388.	980H	7	375	39	58	80.59	115.74	23.41	35.70	18.33	16.34	17.82	4.15	0.00
9399.	992C	12	690	85	128	137.05	201.13	34.13	67.72	34.67	25.60	31.03	7.98	0.00
9360.	DART D600C CRAWLER LOADERS		700	96	145	140.73	206.44	34.95	69.32	35.49	27.05	31.47	8.15	0.00
9455.	CAT 455L		150	16	24	25.68	37.18	8.44	12.18	6.35	1.32	7.44	1.46	0.00

FORM 4113

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HARZA ENGINEERING COMPANY
EQUIPMENT DATA FOR ESTIMATING

PAGE 3

RATES ADJUSTED TO JAN 82 PRICE LEVELS BY 10.0% INFLATION FACTOR

BASIC COST FACTORS - LABOR 15.04/HR ELECTRIC POWER 0.050/KWH

ADJUSTED RATES ARE FOR SUSITNA

DIESEL FUEL 1.06/GAL LUBE OIL 2.40/GAL

ADJ FACTORS: DEPR 1.10 LABOR 2.50 PARTS 1.25 G.E.C 1.25 FUEL 1.27 LUBE 1.27 ELEC 0.00 CRG SECTION 9 TRACTORS & LOADERS

APR 1981

CRG ADJUSTED HOURLY RATES

ITEM NUMBER	DESCRIPTION		WEIGHT			SHIP CUBE	USBASE JAN 82	HOURLY RATE ADJUSTED	CRG ADJUSTED HOURLY RATES						
			HP	TONS					DEPR	LABOR	PARTS	G.E.C	FUEL	LUBE	ELEC
9477. 977L		2	190	22	33		34.97	50.75	11.24	16.75	0.77	1.84	10.08	2.07	0.00
9483. 983H SCRAPERS		4	275	36	53		53.93	79.47	17.69	26.37	13.79	2.89	14.60	3.12	0.00
9521. SELF-PROP CAT 621B		1	330	32	48		56.57	81.49	16.61	25.50	13.17	7.01	15.93	3.28	0.00
9531. CAT 631D		2	450	46	69		75.11	110.39	18.28	37.17	19.15	9.29	21.72	4.79	0.00
9541. CAT 641B		2	550	58	86		91.68	134.95	22.54	45.82	23.60	10.55	26.54	5.88	0.00
9541. CAT 651		3	550	59	88		94.24	139.01	23.50	47.80	24.60	10.55	26.54	6.02	0.00
9527. TANDEM POWERED 627B		1	450	36	53		68.14	98.36	17.97	30.40	15.66	7.08	22.97	4.28	0.00
9537. CAT 637D		2	675	52	78		100.56	148.03	22.56	49.52	25.52	9.29	34.47	6.67	0.00
9557. CAT 657B		3	950	70	105		132.87	194.94	29.07	63.83	32.89	11.65	48.50	9.00	0.00

FORM 1-13

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HARZA ENGINEERING COMPANY
EQUIPMENT DATA FOR ESTIMATING

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RATES ADJUSTED TO JAN 82 PRICE LEVELS BY 10.0% INFLATION FACTOR

BASIC COST FACTORS - LAHOR 15.04/HR ELECTRIC POWER 0.050/KWH

ADJUSTED RATES ARE FOR SUSITNA

DIESEL FUEL 1.06/GAL LUBE OIL 2.40/GAL

ADJ FACTORS: DEPR 1.10 LAHOR 2.50 PARTS 1.25 G.E.C 1.25 FUEL 1.27 LUBE 1.27 ELEC 0.00 CRG SECTION 6 COMPACTION EQUIPMENT

SEP 1981

WEIGHT

HOURLY RATE

CRG ADJUSTED HOURLY RATES

ITEM

SHIP

USBASE

ADJUSTED

NUMBER

DESCRIPTION

HP TONS CUBE

JAN 82

DEPR

LABOR

PARTS

G.E.C

FUEL

LUBE

ELEC

SELF-PROPELLED COMPACTOR

6181. SELF-PROP TAMP CAT 815B 176 21 54 38.04 56.29 11.88 20.35 10.75 1.68 9.56 2.07 0.00

6182. CAT 825C 310 32 82 60.35 88.84 16.35 31.18 16.49 2.58 16.85 3.39 0.00

6142. SELF-PROP VIBR ING-RAND 84 7 24 14.55 21.98 4.71 8.77 4.48 0.86 2.50 0.65 0.00

6156. INGERSOLL-RAND SP56 DD 115 10 35 23.01 34.33 6.87 12.80 6.53 1.25 3.43 3.45 0.00

6160. INGERSOLL-RAND SP60 DD 210 19 66 36.58 55.29 11.85 22.10 11.28 2.17 6.27 1.61 0.00

6151. RUBBER-TIRED - TAMPO SP5 68 5 9 9.44 13.84 3.38 4.92 2.65 0.37 1.99 0.52 0.00

6195. TAMPO SP 950 130 10 1 18.70 27.57 6.57 10.02 5.38 0.75 3.81 1.03 0.00

6110. TAMPO 1070M 130 13 23 22.47 33.11 8.46 12.20 6.55 0.92 3.81 1.17 0.00

PULL-TYPE & OTHER COMPAC

6275. RUBBER-TIRED - SW MB75 75 21 54 19.03 28.09 7.65 10.67 5.60 3.55 0.00 0.61 0.00

6212. SOUTHWEST MB 125B 125 27 70 26.29 39.08 11.09 15.45 8.12 3.55 0.00 0.88 0.00

6219. PAN TYPE VIB 19.5"X25.5" 6 0 2 1.25 1.91 0.43 0.80 0.43 0.06 0.15 0.04 0.00

6230. PAN TYPE VIB 30"X35" 10 0 4 1.95 2.96 0.66 1.23 0.66 0.10 0.25 0.06 0.00

TAMP. SHEEPSFOOT-PULLTYP

6356. SOUTHWEST 56RR 0 13 31 7.92 12.61 2.46 6.07 3.15 0.55 0.00 0.37 0.00

6396. SOUTHWEST 2DL96S 0 3 8 2.18 3.44 0.72 1.62 0.84 0.15 0.00 0.10 0.00

6335. SOUTHWEST 355WS 0 19 46 9.40 14.96 2.93 7.20 3.74 0.66 0.00 0.43 0.00

PR-12-1-54

HARZA ENGINEERING COMPANY
EQUIPMENT DATA FOR ESTIMATING

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RATES ADJUSTED TO JAN 82 PRICE LEVELS BY 10.0% INFLATION FACTOR

BASIC COST FACTORS - LABOR 15.04/HR ELECTRIC POWER 0.050/KWH

ADJUSTED RATES ARE FOR SUSIINA

DIESEL FUEL 1.06/GAL LUBE OIL 2.40/GAL

ADJ FACTORS: DEPR 1.10 LABOR 2.50 PARTS 1.25 G.E.C 1.25 FUEL 1.27 LUBE 1.27 ELEC 0.00 CRG SECTION 10 EXCAVATORS

AUG 1981

WEIGHT

HOURLY RATE

CRG ADJUSTED HOURLY RATES

ITEM NUMBER	DESCRIPTION	HP	TONS	CUBE	SHIP JAN 82	USBASE JAN 82	ADJUSTED	DEPR	LABOR	PARTS	G.E.C	FUEL	LUBE	ELEC
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10166.	GRADALL G-660	115	22	80	37.21		56.22	12.14	22.48	11.93	1.90	6.11	1.66	0.00
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10188.	GRADALL G-880	160	25	94	45.16		68.10	14.11	26.80	14.35	2.19	8.50	2.16	0.00
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10110.	GRADALL G-1000	272	39	140	62.92		94.54	19.41	36.57	19.57	2.98	12.92	3.09	0.00
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10122.	CAT 225	125	26	93	39.98		60.37	13.03	24.07	12.80	2.04	6.64	1.79	0.00
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10123.	CAT 235	195	43	154	66.21		100.34	21.37	40.58	21.72	3.30	10.35	3.02	0.00
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10124.	CAT 245	325	66	236	90.29		138.60	25.23	57.73	30.64	4.93	15.44	4.64	0.00
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10145.	AMERICAN 45A	420	81	292	111.75		172.77	28.56	73.12	38.21	6.71	19.95	6.21	0.00
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10111.	NORTHWEST 100 DH CRAWLER SHOVELS	860	118	424	160.50		244.69	37.82	96.85	50.61	8.90	40.84	9.68	0.00
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10238.	BUCYRUS 38 BHD	178	64	230	76.51		118.46	22.32	51.33	27.60	4.10	9.45	3.67	0.00
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10261.	61B	205	83	300	98.27		154.32	26.03	69.57	37.15	5.75	10.88	4.94	0.00
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10271.	71B	246	105	377	120.44		189.23	31.97	85.48	45.64	7.06	13.06	6.03	0.00
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10288.	88B CRAWLER DRAGLINES	365	140	503	163.62		260.75	36.35	121.48	64.85	10.04	19.38	8.65	0.00
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10325.	BUCYRUS 25 BHD	115	34	125	42.10		64.10	13.47	26.37	13.83	2.39	6.11	1.93	0.00
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10330.	30 BHD	121	41	156	52.66		80.41	17.35	33.62	17.62	3.04	6.43	2.34	0.00
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10338.	38 BHD	178	63	232	75.55		114.94	25.36	47.52	24.74	4.45	9.45	3.42	0.00
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10361.	61 B SUPER	205	109	405	104.90		162.77	31.49	71.37	36.85	6.85	10.88	5.32	0.00
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10371.	71 BHD	246	115	429	116.16		179.92	34.62	78.27	40.48	7.53	13.06	5.96	0.00
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10388.	88 BHD CRAWLER CLAMSHELLS	365	152	561	158.01		244.32	46.61	105.45	54.54	10.14	19.38	8.20	0.00
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10425.	BUCYRUS 25 BHD	115	34	126	43.30		65.86	14.10	27.07	14.28	2.38	6.11	1.92	0.00
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10430.	30 BHD	121	43	161	53.84		82.14	18.00	34.30	18.08	3.02	6.43	2.31	0.00
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10438.	38 BHD	178	64	237	75.53		115.09	25.03	47.78	25.47	3.99	9.45	3.38	0.00
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10461.	61 B SUPER	205	111	411	118.49		182.24	39.33	78.47	41.53	6.78	10.88	5.25	0.00
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10471.	71 BHD	246	116	429	130.69		200.63	43.22	85.72	45.38	7.41	13.06	5.84	0.00
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10488.	88 BHD	365	154	569	166.77		258.07	49.83	111.95	58.80	10.03	19.38	8.08	0.00
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EQUIPMENT DATA FOR ESTIMATING

PAGE 6

RATES ADJUSTED TO JAN 82 PRICE LEVELS BY 10.0% INFLATION FACTOR
BASIC COST FACTORS - LABOR 15.04/HR ELECTRIC POWER 0.050/KWH

ADJUSTED RATES ARE FOR SUSIINA

DIESEL FUEL 1.06/GAL LUBE OIL 2.40/GAL

ADJ FACTORS: DEPR 1.10 LABOR 2.50 PARTS 1.25 G.E.C 1.25 FUEL 1.27 LUBE 1.27 ELEC 0.00 CRG SECTION 13 LIFTING

JUN 1981

WEIGHT

HOURLY RATE

CRG ADJUSTED HOURLY RATES

ITEM

SHIP

USBASE

ADJUSTED

NUMBER

DESCRIPTION

HP TONS

CUBE

JAN 82

DEPR

LABOR

PARTS

G.E.C

FUEL

LUBE

ELEC

HYDRAULIC CRANES SELF-PR

13168. GROVE 68 120 21 56 26.08 39.06 8.16 14.90 8.05 0.24 6.38 1.33 0.00

13151. GROVE RT 518 115 23 62 32.40 48.70 10.41 19.00 10.27 1.41 6.11 1.50 0.00

13130. TRUCK MTD GRM TMS-300 203 35 96 53.20 80.47 16.58 32.03 17.27 1.14 10.78 2.67 0.00

13147. GROVE TMS-475 213 37 103 62.45 95.28 19.43 39.27 21.02 1.10 11.30 3.15 0.00
MECH. CRANES - TRUCK MTD

13235. LINKBELT 80' BOOM 238 37 103 45.62 69.91 16.13 29.95 15.78 1.11 4.83 2.12 0.00

13250. LINKBELT 100' BOOM 238 49 136 52.57 79.61 18.93 32.67 17.47 2.02 5.84 2.67 0.00

13265. AMERICAN 120' BOOM 238 50 138 62.27 94.63 22.72 39.50 20.83 2.37 6.11 3.11 0.00

13290. AMERICAN 140' BOOM 230 66 183 78.76 119.14 28.04 48.55 25.60 2.02 10.78 4.15 0.00

13212. AMERICAN 180' BOOM 350 76 210 88.15 133.72 31.91 55.30 29.15 2.02 10.78 4.56 0.00
MECHANICAL CRANES - CRAW

13330. AMERICAN 80' BOOM 115 38 104 42.14 64.15 13.75 26.47 14.09 2.31 5.46 2.07 0.00

13340. AMERICAN 100' BOOM 115 43 119 48.39 73.90 16.02 30.95 16.51 2.64 5.46 2.31 0.00

13350. AMERICAN 120' BOOM 168 61 167 59.12 90.49 18.34 37.82 20.11 3.28 7.98 2.96 0.00

13375. AMERICAN 150' BOOM 173 74 203 73.64 113.86 22.19 49.30 26.01 4.41 8.22 3.73 0.00

13310. AMERICAN 200' BOOM 168 83 228 73.27 113.10 22.69 48.85 25.95 4.02 7.98 3.62 0.00

13312. AMERICAN 220' BOOM 289 138 380 114.47 175.83 35.71 74.60 39.17 6.71 13.73 5.91 0.00

13315. AMERICAN 240' BOOM 289 148 407 123.04 189.01 38.89 80.38 42.59 7.16 13.73 6.26 0.00

13320. MANITOWOC 270' BOOM 334 182 502 129.46 200.32 37.78 86.57 45.70 7.22 15.86 7.19 0.00

13322. AMERICAN 300' BOOM 289 180 496 129.66 201.12 38.74 88.00 46.48 7.14 13.73 7.05 0.00
WHIRLEY CRANES

13413. BOOM 130'-180' 0 200 552 216.25 328.99 59.88 174.55 77.16 0.00 0.00 17.40 0.00

13416. BOOM 160'-180' 0 200 1481 236.94 363.86 63.37 194.90 86.15 0.00 0.00 19.43 0.00

13420. BOOM 170'-200' 0 320 1766 249.78 575.06 68.26 199.00 87.96 0.00 0.00 19.84 0.00

13430. BOOM 170'-200' 0 400 2208 402.99 705.14 128.34 374.12 165.38 0.00 0.00 37.30 0.00

HARZA ENGINEERING COMPANY
EQUIPMENT DATA FOR ESTIMATING

PAGE 7

RATES ADJUSTED TO JAN 82 PRICE LEVELS BY 10.0% INFLATION FACTOR
BASIC COST FACTORS - LABOR 15.04/HR ELECTRIC POWER 0.050/KWH
DIESEL FUEL 1.06/GAL LUBE OIL 2.40/GAL

ADJUSTED RATES ARE FOR SUSITNA

ADJ FACTORS: DEPR 1.10 LAHOR 2.50 PARTS 1.25 G.E.C 1.25 FUEL 1.27 LUBE 1.27 ELEC 0.00 CRG SECTION 20 TRUCKS

SEP 1981

CRG ADJUSTED HOURLY RATES

ADJ FACTORS: DEPR 1.10 LABOR 2.50 PARTS 1.25 G.E.C 1.00 FUEL 1.00 LUBE 1.00 ELEC 1.00						CRG ADJUSTED HOURLY RATES							
ITEM NUMBER	DESCRIPTION	WEIGHT		SHIP CUBE	USBASE JAN 82	HOURLY RATE ADJUSTED	DEPR	LABOR	PARTS	G.E.C	FUEL	LUBE	ELEC
		HP	TONS										
REAR DUMP TRUCKS STRUCK													
20164.	6X4 TRIAXLE (HIGHWAY) 10	220	9	58	22.74	31.08	6.04	6.62	3.24	4.22	9.52	1.44	0.00
20125.	EUCLID R-25 14.	220	10	125	31.07	42.45	11.95	10.15	5.63	4.34	8.29	2.10	0.00
20135.	R-35 22.	430	28	192	46.63	62.64	17.21	12.82	7.10	7.32	14.74	3.44	0.00
20150.	R-50 37.	606	39	261	62.37	84.19	21.94	17.62	9.73	9.33	20.78	4.79	0.00
20175.	R-75 45.	755	51	342	76.75	102.77	25.90	19.72	10.97	14.18	25.90	6.10	0.00
20185.	R-85 52.	818	56	382	82.89	110.80	27.12	20.67	11.47	17.01	28.05	6.48	0.00
BOTTOM DUMP													
20235.	EUCLID B-30 21.	277	24	161	31.51	40.73	14.28	6.30	5.39	6.14	6.34	2.27	0.00
20263.	B-63 42.	423	45	304	56.59	76.12	22.44	16.37	9.14	12.40	11.82	3.95	0.00
20270.	B-70 42.	423	45	309	57.02	76.69	22.70	16.52	9.25	12.40	11.82	3.99	0.00
20210.	B-100 60	576	57	387	67.64	92.06	23.69	20.80	11.63	14.71	16.09	5.14	0.00
20211.	B-110 67.	576	58	397	70.03	95.16	24.12	21.15	11.83	16.70	16.09	5.27	0.00
ON/OFF HIGHWAY 6X4													
20308.	TRI-AXLE (Slurry Truck)	195	9	61	20.02	27.11	5.27	5.30	2.62	4.22	8.45	1.26	0.00
20308.		210	10	68	21.19	28.80	5.48	5.77	2.85	4.22	9.09	1.37	0.00
20312.		220	11	75	25.37	34.58	6.25	7.00	3.46	4.22	11.91	1.74	0.00
20364.	FLATBED (DIESEL) WATER TRUCKS	210	5	34	14.70	19.79	3.21	3.37	1.66	1.26	9.09	1.18	0.00
20430.	3000 GALS	210	6	37	8.92	12.16	2.44	2.52	1.19	0.95	4.41	0.65	0.00
20460.	6000 GALS (TRACTOR W/TR)	304	28	200	41.58	59.30	15.16	18.40	9.05	4.45	9.68	2.57	0.00
20410.	10000 GALS (TRACTOR W/TR FLAT BED TRACTOR TRAILER	608	44	311	65.87	94.81	23.24	30.63	15.05	5.47	16.14	4.28	0.00
20530.	30 T	195	12	79	18.83	26.07	5.54	6.30	3.12	2.58	7.35	1.17	0.00
20560.	60 T LOW BED TRACTOR TRAILERS	275	18	118	31.98	44.97	10.17	12.37	6.14	3.99	10.38	1.92	0.00
20630.	30 T	195	13	83	19.45	26.99	5.86	6.67	3.32	2.58	7.35	1.21	0.00
20660.	60 T	275	19	123	32.53	45.82	10.42	12.75	6.35	3.99	10.38	1.93	0.00

FORM 141-3

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EQUIPMENT DATA FOR ESTIMATING

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RATES ADJUSTED TO JAN 82 PRICE LEVELS BY 10.0% INFLATION FACTOR

ADJUSTED RATES ARE FOR SUSITNA

BASIC COST FACTORS - LABOR 15.04/HR ELECTRIC POWER 0.050/KWH

ADJ FACTORS: DEPR 1.10 LABOR 2.50 PARTS 1.25 G.E.C 1.25 FUEL 1.27 LUBE 1.27 ELEC 0.00 CRG SECTION 21 TUNNEL EQUIPMENT

DIESEL FUEL 1.06/GAL LUBE OIL 2.40/GAL

SEP 1980

WEIGHT

HOURLY RATE

CRG ADJUSTED HOURLY RATES

ITEM NUMBER	DESCRIPTION	HP	TONS	CUFE	SHIP JAN 82	USBASE JAN 82	ADJUSTED	DEPR	LABOR	PARTS	G.E.C	FUEL	LUBE	ELEC
	MUCKER - CRAWLER MID, PN													
21163.	EIMCO 630 MUCKERS - RAIL MOUNTED	22	5	13	19.63		35.02	5.23	22.38	7.03	0.00	0.00	0.39	0.00
21208.	EIMCO 22 (PNEUMATIC)	0	4	9	11.84		21.05	3.33	13.39	4.09	0.00	0.00	0.24	0.00
21208.	HAAGLUND 8 HR	0	0	0	57.37		91.43	15.03	43.47	30.90	0.00	0.00	2.03	0.00
21210.	CONWAY 100-2 MUCKERS - LOAD, HAUL DUMP	150	0	0	122.65		181.91	30.76	86.92	61.79	0.00	0.00	2.44	0.00
21301.	WAGNER HST 1A	52	5	13	28.03		48.03	5.86	27.48	9.65	1.96	2.36	0.72	0.00
21302.	ST 20	70	12	29	46.06		77.63	8.98	42.43	14.93	7.05	3.16	1.07	0.00
21305.	ST 5B	180	23	56	80.74		133.13	12.10	67.40	23.70	19.79	8.15	2.00	0.00
21308.	ST 8A	226	28	67	108.36		180.94	15.83	94.88	33.37	23.72	10.45	2.70	0.00
21313.	ST 13 RAIL EQUIPMENT	317	52	124	137.10		231.23	20.82	124.84	43.90	23.72	14.34	3.62	0.00
21410.	10 TON LOCOMOTIVE	83	10	0	27.51		44.65	9.03	22.84	7.84	0.00	3.76	1.19	0.00
21415.	15 T	103	15	0	35.16		57.13	11.59	29.31	10.05	0.00	4.66	1.51	0.00
21425.	25 T	103	25	0	51.47		84.06	17.39	43.94	15.10	0.00	5.59	2.04	0.00
21405.	5 CY SIDE DUMP MUCK CAR	0	4	5	3.13		5.49	0.84	3.37	1.19	0.00	0.00	0.08	0.00
21412.	12 CY SIDE DUMP MUCK CAR	0	0	0	6.26		10.97	1.67	6.75	2.38	0.00	0.00	0.17	0.00
21416.	16 CY SIDE DUMP MUCK CAR	0	0	0	7.84		13.74	2.10	8.45	2.98	0.00	0.00	0.21	0.00
21401.	FLAT CAR - 10 TON VENTILATION	0	1	2	2.31		4.06	0.56	2.51	0.94	0.00	0.00	0.06	0.00
21518.	18" FAN	20	0	1	2.44		2.11	0.37	1.27	0.44	0.00	0.00	0.03	0.00
21524.	24" FAN	40	0	2	4.24		3.04	0.54	1.84	0.62	0.00	0.00	0.04	0.00
21536.	36" FAN	75	1	4	8.18		6.11	1.07	3.67	1.28	0.00	0.00	0.08	0.00
21548.	48" FAN DRILL JUMBUS (W/O FEED)	125	0	0	13.49		10.07	1.77	6.05	2.11	0.00	0.00	0.14	0.00
21601.	RAIL MOUNTED - JACKLEG	0	0	0	2.77		4.89	0.67	3.02	1.12	0.00	0.00	0.07	0.00
21603.	3-BOOM DRIFTER	0	2	8	5.40		8.44	1.89	4.48	1.92	0.00	0.00	0.15	0.00
21604.	ADDITIONAL BOOMS - EA	0	0	0	1.07		1.68	0.37	0.89	0.38	0.00	0.00	0.03	0.00

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EQUIPMENT DATA FOR ESTIMATING

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RATES ADJUSTED TO JAN 82 PRICE LEVELS BY 10.0% INFLATION FACTOR

BASIC COST FACTORS - LABOR 15.04/HR ELECTRIC POWER 0.050/KWH

ADJUSTED RATES ARE FOR SUSITNA

DIESEL FUEL 1.06/GAL LUBE OIL 2.40/GAL

ADJ FACTORS: DEPR 1.10 LABOR 2.50 PARTS 1.25 G.E.C 1.25 FUEL 1.27 LUBE 1.27 ELEC 0.00 CRG SECTION 21 TUNNEL EQUIPMENT

SEP 1980

WEIGHT

HOURLY RATE

CRG ADJUSTED HOURLY RATES

ITEM
NUMBER

DESCRIPTION

HP TONS

SHIP
CUBE

USBASE
JAN 82

ADJUSTED

DEPR

LABOR

PARTS

G.E.C

FUEL

LUBE

ELEC

21605. RUBBER TIRED - JACKLEG

0 0 0

4.87

7.66

1.14

3.43

1.31

0.78

0.82

0.19

0.00

21606. 3-BOOM DRIFTER

72 10 24

19.44

30.59

4.55

13.68

5.24

3.11

3.26

0.75

0.00

21607. ADDITIONAL BOOMS - EA

0 0 0

3.89

6.12

0.91

2.73

1.05

0.62

0.65

0.15

0.00

HARZA ENGINEERING COMPANY
EQUIPMENT DATA FOR ESTIMATING

PAGE 10

RATES ADJUSTED TO JAN 82 PRICE LEVELS BY 10.0% INFLATION FACTOR

BASIC COST FACTORS - LABOR 15.04/HR ELECTRIC POWER 0.050/KWH

ADJUSTED RATES ARE FOR SUSITNA

DIESEL FUEL 1.06/GAL LUBE OIL 2.40/GAL

ADJ FACTORS: DEPR 1.10 LABOR 2.50 PARTS 1.25 G.E.C 1.25 FUEL 1.27 LUBE 1.27 ELEC 0.00 CRG SECTION 22 ADDITIONAL EQUIPMENT JAN 1982

WEIGHT

HOURLY RATE

CRG ADJUSTED HOURLY RATES

ITEM NUMBER	DESCRIPTION	HP	TONS	SHIP CUBE	USBASE JAN 82	ADJUSTED	DEPR	LABOR	PARTS	G.E.C	FUEL	LUBE	ELEC
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TRACTORS

22110.	D10 DOZER	700	81	121	126.10	188.51	35.53	70.00	33.37	3.50	37.72	8.38	0.00
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22108.	D8 DOZER	335	41	60	61.30	90.93	17.82	32.75	15.63	1.62	19.05	4.06	0.00
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MINING & DRILLING EQUIP.

22203.	3-BOOM HYDR JUMBO W/DRIL	0	32	97	77.10	109.27	42.57	43.50	14.38	3.87	2.67	2.29	0.00
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22204.	4-BOOM HYDR JUMBO W/DRIL	0	40	125	98.70	140.04	55.33	56.50	18.75	3.87	2.67	2.92	0.00
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22210.	AIR TRACK DRILL	0	0	0	18.70	30.78	7.15	14.75	4.37	0.00	0.00	0.51	0.00
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GENERATOR SETS

						42.01	9.76	22.16	0.69			0.70	
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22305.	530 KW DIESEL (CAT 348 J	0	8	18	65.80	90.09	6.49	15.50	6.00	0.00	55.75	6.35	0.00
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22316.	1600 KW DIESEL (EMD)	2300	41	102	163.02	214.41	25.44	23.30	9.84	0.00	153.47	2.36	0.00
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22328.	2800 KW DIESEL (EMD)	4000	50	131	271.96	356.23	37.47	34.27	14.47	0.00	266.55	3.47	0.00
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OTHER

22410.	BELT LOADER 60"X60'	227	35	166	54.57	81.42	20.26	31.50	15.14	0.65	10.92	2.95	0.00
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Hydraulic Crawler Drills

						62.37	20.00	23.00	23.87	0.50	12.00	3.00	
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