

HARZA-EBASCO

Susitna Joint Venture
Document Number

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Before The
Federal Energy Regulatory Commission
Application For License For Major Project

SUSITNA HYDROELECTRIC PROJECT

PROJECT NO. 7114-000

FEASIBILITY LEVEL ESTIMATE

Volume 2

August, 1984

ALASKA POWER AUTHORITY

DEVIL CANYON

PRICE REPORT

DEVIL CANYON - FERC APPLICATION

FILE # 1563-103

FEASIBILITY LEVEL

(L LEVY, RAM D, DEB)

SUMMARY OF COST ESTIMATE

JULY 10, 1984

ACCOUNT 330 LAND & LAND RIGHTS	22,050,000
ACCOUNT 331 POWERHOUSE	74,034,659
ACCOUNT 332.1 RESERVOIR CLEARING	8,012,747
ACCOUNT 332.2 DIVERSION TUNNELS	17,593,308
ACCOUNT 332.22 D/S COFFERDAM	6,986,729
ACCOUNT 332.23 U/S COFFERDAM	1,417,252
ACCOUNT 332.3 MAIN DAM	281,898,063
ACCOUNT 332.4 SADDLE DAM	43,395,780
ACCOUNT 332.51 OUTLET FACILITIES	14,934,000
ACCOUNT 332.52 MAIN SPILLWAY	73,104,849
ACCOUNT 332.6 POWER INTAKE	29,062,344
ACCOUNT 332.7 SURGE CHAMBER	17,966,464
ACCOUNT 332.8 PENSTOCKS	36,151,492
ACCOUNT 332.9 TAILRACE	46,200,915
ACCOUNT 333 WATERWHEELS, TURBINES & GENERATORS	42,000,000
ACCOUNT 334 ACCESSORY ELECTRICAL EQUIPMENT	13,670,000
ACCOUNT 335 MISC POWER PLANT EQUIPMENT	10,920,000
ACCOUNT 336 ROADS RAIL & AIR FACILITIES	118,484,000
ACCOUNTS 350-359 TRANSMISSION PLANT	91,440,000
ACCOUNT 399 GENERAL PLANT	5,000,000
ACCOUNT (63) CONSTRUCTION FACILITIES	145,083,025
ACCOUNT (68) MITIGATION	4,300,000

SUBTOTAL	1,103,706,427
CONTINGENCY ALLOWANCE	161,293,573

TOTAL CONSTRUCTION COST	1,265,000,000
ENGINEERING & ADMINISTRATION	204,000,000

TOTAL COST - JAN 82 PRICE LEVEL	1,469,000,000
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NOTE: THE TRANSMISSION LINE COSTS ARE TAKEN FROM ACRES
1982 LEVEL ESTIMATE.

DATE JULY 7, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON -- FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
A	DEVIL CANYON (H-E COSTS)				
330	LAND & LAND RIGHTS	1	LS	22050000.00	22,050,000
SUBTOTAL, PAGE 1					22,050,000
ACCOUNT 330 LAND & LAND RIGHTS					22,050,000

DATE JULY 7, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
331.1	POWERSTATION			
.11	POWERHOUSE			
.111	UNDERGROUND- ROCK EXC	112600 CY	78.00	8,782,800
.113	DRILL & GROUT	43800 LF	29.13	1,275,894
.114	CONCRETE-1ST STAGE	31800 CY	374.72	11,916,096
.115	CONCR.-2ND STAGE			
.117	DRAIN HOLES	36960 LF	23.00	850,080
.118	METALWORK	1 LS	3552000.00	3,552,000
.119	ARCHITECTURAL	1 LS	767000.00	767,000
.11C	MISC MECHANICAL	1 LS	1697000.00	1,697,000
.12	ACCS. TUNLS&PORTALS			
.12B	ACCESS PORTAL & ROAD ROCK EXC	5000 CY	21.83	109,150

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.120	35' X 28' TUNNEL EXC	5825 LF	3092.50	18,013,813
.121	25' X 20' TUNNEL EXC	575 LF	2841.05	1,633,604
.122	22' X 22' EXCAVATION	500 LF	2830.30	1,415,150
.123	10' X 10' EXCAVATION	1275 LF	1084.00	1,382,100
.124	PORTALS CONCRETE	600 CY	412.31	247,386
.125	TUNNEL SLAB CONCRETE	4030 CY	312.77	1,260,463
.126	PENSTOCK ADIT PLUG CONCRETE	10000 CY	194.72	1,947,200
.129	MAIN PORTAL DOORS	2 SETS	77000.00	154,000
.13	ACCESS SHAFT			
.131	ROCK, EXC 23' DIA	838 LF	3616.85	3,030,920
.134.	CONCRETE LINING 20" ID	838 LF	2209.10	1,910,266

SUBTOTAL, PAGE 3

31,002,902

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.138	MISC. METALWORK	50 TONS	3833.05	191,652
.13C	ELEVATORS	1 LS	1023000.00	1,023,000
.14	FIRE PROTECTION HEADTANK	1 LS	560000.00	560,000
.15	BUS TUNNELS			
.151	EXC HORIZONTAL 22X22	224 LF	2830.30	633,987
.152	EXC INCLINED 16X16	320 LF	2348.90	751,648
.154	BUS TUNNEL SLAB CONC	800 CY	312.77	250,216
.16	TRANSFORMER GALLERY			
.161	EXCAVATION	20800 CY	84.00	2,419,200
.164	CONCRETE SLAB	2010 CY	312.77	678,004
.167	DRAIN HOLES	8900 LF	23.00	204,700
SUBTOTAL, PAGE 4				6,913,287

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.17	CABLE SHAFTS			
.171	EXCAVATION 9' DIA	1525 LF	1941.05	2,960,101
.174	CON. LINING 7.5' DIA	1525 LF	1235.75	1,884,519
.178	MISC. METALWORK	13 TONS	3833.05	49,830
.179	ENCLOSURES (ARCH.)	1 LS	92000.00	92,000
.170	MANHOIST	2 EA	236000.00	472,000
.18	CARE OF WATER	1 LS	714000.00	714,000
.19	INSTRUMENTATION	1 LS	791000.00	791,000
.2	MISC. BUILDINGS & STRUCTURES	1 LS	205000.00	205,000
SUBTOTAL, PAGE 5				7,160,450
ACCOUNT 331 POWERHOUSE				74,034,659

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
332	RESERVOIRS, DAMS AND WATERWAYS			
.1	RESERVOIR CLEARING	6350 ACRES	1261.85	8,012,747
SUBTOTAL, PAGE 6				8,012,747
ACCOUNT 332.1 RESERVOIR CLEARING				8,012,747

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HARZA-EBASCO JOINT VENTURE
 FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.2	DIVERSION TUNNELS			
.211	EXCAVATION 33 X 33	1465 LF	3604.60	5,280,739
.212	PORTALS-COMMON EXCAVATION	8550 CY	6.10	52,155
.21A	PORTALS-ROCK EXC.	104200 CY	21.83	2,274,686
.214	TUNNEL CONC. LINING-30' ID	1465 LF	2692.35	3,944,293
.215	TUNNEL PLUG CONCRETE	3000 CY	194.72	584,160
.216	PORTAL CONCRETE	5750 CY	487.70	2,804,275
.21C	DIV TUNNEL MECHANICAL	1 LS	2653000.00	2,653,000
SUBTOTAL, PAGE 7				17,593,308
ACCOUNT 332.2 DIVERSION TUNNELS				17,593,308

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.22	U/S COFFERDAM			
.221	FILL - CORE	4600 CY	30.19	138,874
.222	FILTERS	5500 CY	20.77	114,235
.22A	SHELL	19800 CY	13.05	258,390
.22B	CLOSURE DIKE	41900 CY	8.70	364,530
.22C	RIPRAP	7000 CY	6.85	47,950
.223	CUT-OFF WALL	35000 SF	38.05	1,331,750
.22D	CARE OF WATER	1 LS	4731000.00	4,731,000
SUBTOTAL, PAGE 8				6,986,729
ACCOUNT 332.22 D/S COFFERDAM				6,986,729

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.23	D/S COFFERDAM			
.231	REMOVAL	42000 CY	10.15	426,300
.232	CLOSURE DIKE FILL	47000 CY	8.70	408,900
.23A	RIPRAP	1650 CY	6.85	11,302
.233	CUT-OFF WALL	15000 SF	38.05	570,750
SUBTOTAL, PAGE 9				1,417,252
ACCOUNT 332.23 U/S COFFERDAM				1,417,252

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HARZA-EDASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.3	MAIN DAM			
.311	EXCAVATION - COMMON	35600 CY	11.93	424,700
.312	EXCAVATION - ROCK	320700 CY	23.93	7,674,351
.313-	DRILL & GROUT-CONSOL	176900 LF	27.60	4,882,440
.31A	DRILL & GROUT-CURTAIN	259000 CY	30.66	7,940,940
.314	ARCH DAM CONCRETE	1281500 CY	170.58	218,598,270
.315	THRUST BLOCK CONCRETE			
	- LEFT	75500 CY	215.61	16,270,555
	- RIGHT	30000 CY	229.18	6,875,400
.317	DRAIN HOLES	65800 LF	23.61	1,553,538
.32	GROUT GALLRS&PORTALS			
.321	HORIZ. GALLRS 10X10	3970 LF	825.00	3,275,250
SUBTOTAL, PAGE 10				267,503,452

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.322	INCLINED GALLERIES 10' X 10'	1650 LF	1265.45	2,089,642
.323	SHAFTS 10X10	300 LF	2954.50	886,350
.32A	ACCESS ADITS 20HX15W	1220 LF	2100.50	2,562,610
.32B	OUTLET ACCESS SHAFT 20' DIA	375 LF	3118.55	1,169,456
.32C	PORTALS-COMMON EXC.	28700 LF	6.10	175,070
.32D	PORTALS-ROCK EXC.	16500 LF	21.83	360,195
324	TUNNEL CONCRETE SLABS	3200 CY	312.77	1,000,864
.325	PORTAL CONCRETE	40 CY	460.59	18,424
.32B	MISC. METALWORK	1 LS	284000.00	284,000
.329	ARCHITECTURAL	1 LS	526000.00	526,000
.32E	MECHANICAL-ELEVATOR OVHD CRANE & MISC.	1 LS	1329000.00	1,329,000

SUBTOTAL, PAGE 11

10,401,611

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.33	DAM INSTRUMENTATION	1	LS	3993000.00	3,993,000
SUBTOTAL, PAGE 12					3,993,000
ACCOUNT 332.3 MAIN DAM					281,898,063

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.4	SADDLE DAM			
.411	EXCAVATION-COMMON	1145000 CY	4.46	5,106,700
.41A	EXCAVATION-ROCK	301000 CY	14.55	4,379,550
.412	SADDLE DAM FILL			
.41B	IMPERVIOUS CORE	313500 CY	30.19	9,464,565
.41C	FINE FILTER	231000 CY	20.77	4,797,070
.41D	COARSE FILTER	193000 CY	20.77	4,008,610
.41E	RIP RAP	174500 CY	6.85	1,195,325
.41F	SHELL FILL - U/S	534000 CY	12.69	6,776,460
.41G	SHELL FILL - D/S	345000 CY	12.69	4,378,050
.41H	ROCK FILL	127000 CY	4.89	621,030
SUBTOTAL, PAGE 13				40,728,160

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FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.413	DRILL & GRT -CONSUL	57500 LF	27.60	1,587,000
.414	DENTAL CONCRETE	7100 CY	152.20	1,080,620
SUBTOTAL, PAGE 14				2,667,620
ACCOUNT 332.4 SADDLE DAM				43,395,780

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FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.51	OUTLET FACILITIES				
	MECHANICAL & ELECTRIC	1	LS	14934000.00	14,934,000
SUBTOTAL, PAGE 15					14,934,000
ACCOUNT 332.51 OUTLET FACILITIES					14,934,000

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.52	MAIN SPILLWAY			
.521	COMMON EXC - APPROACH & CONTROL STRUCTURE	73000 CY	4.88	356,240
.522	COMMON EXC - CHUTE & FLIP BUCKET	107000 CY	5.35	572,450
.52A	RIVER CHANNEL ALLUVIUM EXCAVATION	67000 CY	8.45	566,150
.52B	ROCK EXCAVATION - APPROACH	280000 CY	15.76	4,412,800
.52B1	ROCK EXCAVATION - CONTROL STRUCTURE	230000 CY	17.49	4,022,700
.52C	ROCK EXCAVATION - CHUTE & FLIP BUCKET	819000 CY	17.49	14,324,310
.52D	HORIZONTAL DRAIN TUNNEL 10 X 10	430 CY	1004.00	466,120
.52E	INCLINED DRAIN TUNNEL 10 X 10	670 LF	1266.45	848,521
SUBTOTAL, PAGE 16				25,569,291

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.523	DRILL&GRT - CONSOL.	22000 LF	27.60	607,200
.524	SPILLWAY CONCRETE INCL FLIP BUCKET			
.52F	PIERS (INCL. SIDE PIERS)	35000 CY	318.26	11,393,700
.52G	DECK	300 CY	895.00	268,500
.52H	GUIDE WALLS	23000 CY	425.11	9,777,530
.52I	SLAB	14500 CY	575.00	8,337,500
.52J	OGEE	24800 CY	238.60	5,917,280
.52K	FLIP BUCKET	7000 CY	377.25	2,640,750
.52L	DRAIN GALLERY CONCRETE SLAB	400 CY	313.29	125,316
.525	15' ROCKBOLTS	400 EA	194.72	77,888
SUBTOTAL, PAGE 17				39,145,672

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PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.526	10" ROCKBOLTS	6520 EA	130.32	849,686
.527	DRAIN HOLES	49400 LF	23.00	1,136,200
.52L	SPILLWAY MECH&ELECT	1 LS	6404000.00	6,404,000
SUBTOTAL, PAGE 18				8,389,886
ACCOUNT 332.52 MAIN SPILLWAY				73,104,849

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FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.6	POWER AND OUTLET INTAKE&APPROACH			
.611	COMMON EXCAVATION	97600 CY	4.40	429,440
.612	APPROACH - ROCK EXCAVATION	216200 CY	15.76	3,407,312
.614	CONCRETE	37900 CY	490.96	18,607,384
.615	1"X15' ROCKBOLTS	150 EA	194.72	29,208
.61C	INTAKE MECH&ELECT	1 LS	6384000.00	6,384,000
.61D	INTAKE BUILDING	1 LS	205000.00	205,000
SUBTOTAL, PAGE 19				29,062,344
ACCOUNT 332.6 POWER INTAKE				29,062,344

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PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.7	SURGE CHAMBER			
.711	ROCK EXCAVATION	153800 CY	97.00	14,918,600
.712	VENT SHAFT EXC(16')	850 LF	2206.30	1,875,355
.714	CONCRETE	1300 CY	580.00	754,000
.717	DRAIN HOLES	13650 LF	30.66	418,509
SUBTOTAL, PAGE 20				17,966,464
ACCOUNT 332.7 SURGE CHAMBER				17,966,464

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PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.8	PENSTOCKS				
.811	EXC -INCL - 24' DIA	2550	LF	4490.00	11,451,540
.81A	EXC -INCL - 20' DIA	200	LF	3118.55	623,710
.812	EXC - HORIZ - 20' DIA	950	LF	1642.05	1,559,947
.813	DRILL & GROUT-CONSOL	1	LS	229000.00	229,000
.814	PENSTOCK CONCRETE LINER-INCL -20'	2550	LF	4222.50	10,767,375
.81B	STEEL LINED INCL. 15' CONC PENST. LINER	200	LF	1922.65	384,530
.815	PENSTOCK CONCRETE LINER-HORIZ- 15' ID	950	LF	1602.20	1,522,090
.816	PENSTOCK CONC. PLUG	10000	CY	194.72	1,947,200
.818	STEEL LINER	2000	TON	3833.05	7,666,100
SUBTOTAL, PAGE 21					36,151,492
ACCOUNT 332.3 PENSTOCKS					36,151,492

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
.9	TAILRACE			
.911	TUNNEL EXC. - 42'	6730 LF	3685.85	24,805,770
.912	PORTAL COMMON EXC	40000 CY	6.10	244,000
.913	PORTAL ROCK EXC	21000 CY	21.83	458,430
.914	TAILRACE TUNNEL CONCRETE -38' ID	6730 LF	3015.85	20,296,670
.91A	PORTAL CONCRETE	750 CY	446.22	334,665
.915	PORTAL ROCKBOLTS 1"X15'	100 EA	194.72	19,472
.91C	TAILRACE STOPLOGS GUIDES & FOLLOWERS	1 LS	41908.00	41,908
SUBTOTAL, PAGE 21				46,200,915
ACCOUNT 332.9 TAILRACE				46,200,915

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HARZA-EBASCO JOINT VENTURE
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ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
333	WATERWHEELS, TURBINE & GENERATORS				
.11	TURBINES & GOVERNORS	4	EA	5000000.00	20,000,000
.21	GENERATORS & EXCITERS	4	EA	5500000.00	22,000,000
SUBTOTAL, PAGE 23					42,000,000
ACCOUNT 333 WATERWHEELS, TURBINES &					42,000,000

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ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
334	ACCESSORY ELECTRICAL EQUIPMENT	1	LS	13670000.00	13,670,000
SUBTOTAL, PAGE 24					13,670,000
ACCOUNT 334 ACCESSORY ELECTRICAL EQU					13,670,000

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ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
335	MISC POWER PLNT EQUIP	1	LS	10920000.00	10,920,000
SUBTOTAL, PAGE 25					10,920,000
ACCOUNT 335 MISC POWER PLANT EQUIPME					10,920,000

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ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
336	ROADS, RAIL & AIR FAC			
.11	PERM. ACCESS ROADS	1 LS	51413000.00	51,413,000
.12	SITE ROADS	7 MI	4944000.00	34,608,000
.13	PERMANENT ROADS	3 MILES	500000.00	1,500,000
.14	ROAD MAINTENANCE- CANTWELL TO WATANA	650 M-YR	9000.00	5,850,000
.2	RAIL FACILITIES	1 LS	25113000.00	25,113,000
SUBTOTAL, PAGE 26				118,484,000
ACCOUNT 336 ROADS RAIL & AIR FACILIT				118,484,000

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ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
350-359	TRANSMISSION PLANT	1	LS	91440000.00	91,440,000
SUBTOTAL, PAGE 27					91,440,000
ACCOUNTS 350-359 TRANSMISSION PLANT					91,440,000

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FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
399	GENERAL PLANT	1 LS	5000000.00	5,000,000
SUBTOTAL, PAGE 28				5,000,000
ACCOUNT 399 GENERAL PLANT				5,000,000

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FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
(63)				
CONSTRUCT. FACILITIES				
.1-.5	CONSTRUCTION CAMPS & PERMANENT VILLAGE	1 LS	53400000.00	53,400,000
.6	CATERING & SUPPORT	1059290 MD	62.50	66,205,625
.7	ELECTRIC POWER			
.71	34.5 KV SYSTEM	1 LS	2100000.00	2,100,000
.72	CAMP POWER	140300 MWH	70.00	9,821,000
.73	CONSTRUCTION POWER	50000 MWH	70.00	3,500,000
.8	CONSTRUCTION HEATING & VENTILATING			
.01	PLANT	1 LS	2465000.00	2,465,000
.02	OPERATION	1870 DAYS	4060.00	7,592,200
SUBTOTAL, PAGE 29				145,003,025
ACCOUNT (63) CONSTRUCTION FACILITIE				145,003,025

DATE JULY 7, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT PRICE	TOTAL PRICE
(68)	MITIGATION	1 LS	4300000.00	4,300,000
SUBTOTAL, PAGE 30				4,300,000
ACCOUNT (68) MITIGATION				4,300,000
GRAND TOTALS				1,103,706,427

MARK UP FACTORS

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

NO. #1563-103
EST. BY RAM D/
& REV. DEB/L LEVY

HARZA-EBASCO JOINT VENTURE
MARK UP DERIVATION

MARK UP SUMMARY

A. INDIRECTS	121,880,000
B. MOBILIZATION & DEMOBILIZATION	12,100,000
C. INSURANCE	0
D. FINANCING COST	27,340,000
E. PROFIT	65,000,000

TOTALS INDIRECT	226,320,000
TOTAL DIRECT COSTS	877,395,007

TOTAL CONSTRUCTION COSTS	1,103,715,007 (*2)

MARK UP = $\frac{1,103,715,007 - 452,947,825 \text{ (OTHER COSTS)}}{877,395,007 - 452,947,825}$
= 1.53321 (FOR CIVIL ITEMS ONLY)

NOTE: (1) THE MECHANICAL COSTS IN THE CIVIL ITEMS WERE ADJUSTED BY A FACTOR OF $(1.53321/1.5) 1.0221$, IN ORDER TO ACCOUNT FOR THE ASSUMPTION THAT THE OTHER COSTS INCLUDED OVERHEAD & PROFIT OF 50% INSTEAD OF THE ACTUAL 53.32%.

* (2) THIS FIGURE IS SLIGHTLY DIFFERENT FROM THE TOTAL IN THE PRICE REPORT DUE TO ROUNDING OF THE MARKUP FACTOR.

DIRECT COST REPORT

DEVIL CANYON FERC APPLICATION

FILE # 1563-103

FEASIBILITY LEVEL

(L LEVY, RAM D, DEB)

SUMMARY OF DIRECT COST ESTIMATE

JULY 10, 1984

ACCOUNT 330 LAND & LAND RIGHTS	22,050,000
ACCOUNT 331 POWERHOUSE	40,290,202
ACCOUNT 332.1 RESERVOIR CLEARING	5,230,750
ACCOUNT 332.2 DIVERSION TUNNELS	11,475,609
ACCOUNT 332.22 D/S COFFERDAM	4,556,194
ACCOUNT 332.23 U/S COFFERDAM	922,442
ACCOUNT 332.3 MAIN DAM	103,874,284
ACCOUNT 332.4 SADDLE DAM	28,333,505
ACCOUNT 332.51 OUTLET FACILITIES	9,741,000
ACCOUNT 332.52 MAIN SPILLWAY	47,670,676
ACCOUNT 332.6 POWER INTAKE	10,956,036
ACCOUNT 332.7 SURGE CHAMBER	11,675,650
ACCOUNT 332.8 PENSTOCKS	23,579,450
ACCOUNT 332.9 TAILRACE	30,133,384
ACCOUNT 333 WATERWHEELS, TURBINES & GENERATORS	42,000,000
ACCOUNT 334 ACCESSORY ELECTRICAL EQUIPMENT	13,670,000
ACCOUNT 335 MISC POWER PLANT EQUIPMENT	10,920,000
ACCOUNT 336 ROADS RAIL & AIR FACILITIES	110,404,000
ACCOUNTS 350-359 TRANSMISSION PLANT	91,440,000
ACCOUNT 399 GENERAL PLANT	5,000,000
ACCOUNT (63) CONSTRUCTION FACILITIES	145,083,825
ACCOUNT (68) MITIGATION	4,300,000

GRAND TOTAL	877,395,007

NOTE: THE TRANSMISSION LINE COSTS ARE TAKEN FROM ACRES
1902 LEVEL ESTIMATE.

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST

A	DEVIL CANYON (II-E COSTS)				
330	LAND & LAND RIGHTS	1	LS	22050000.00	22,050,000

SUBTOTAL, PAGE 1					22,050,000
ACCOUNT 330 LAND & LAND RIGHTS:					22,050,000

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST.	TOTAL COST
331.1	POWERSTATION			
.11	POWERHOUSE			
.111	UNDERGROUND- ROCK EXC	112600 CY	51.00	5,742,600
.113	DRILL & GROUT	43800 LF	19.00	832,200
.114	CONCRETE-1ST STAGE	31800 CY	244.40	7,771,920
.115	CONCR.-2ND STAGE			
.117	DRAIN HOLES	36960 LF	15.00	554,400
.118	METALWORK	1 LS	2317000.00	2,317,000
.119	ARCHITECTURAL	1 LS	501000.00	501,000
.11C	MISC MECHANICAL	1 LS	1107000.00	1,107,000
.12	ACCS. TUNLS&PORTALS			
.12B	ACCESS PORTAL & ROAD ROCK EXC	5000 CY	14.24	71,200

832

1944

SI 74-15

DATE JULY 9, 1984
 FILE NO 1563-1
 PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
 FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.120	35' X 28' TUNNEL EXC	5825 LF	2017.00	11,749,025
.121	25' X 20' TUNNEL EXC	575 LF	1853.00	1,065,475
.122	22' X 22' EXCAVATION	500 LF	1846.00	923,000
.123	10' X 10' EXCAVATION	1275 LF	705.00	890,875
.124	PORTALS CONCRETE	600 CY	268.92	161,352
.125	TUNNEL SLAB CONCRETE	4030 CY	204.00	822,120
.126	PENSTOCK ADIT PLUG CONCRETE	10000 CY	127.00	1,270,000
.129	MAIN PORTAL DOORS	2 SETS	50000.00	100,000
.13	ACCESS SHAFT			
.131	ROCK EXC 23' DIA	830 LF	2359.00	1,976,042
.134	CONCRETE LINING 20' ID	830 LF	1493.00	1,251,134

SUBTOTAL, PAGE 3

20,217,023

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.130	MISC. METALWORK	50 TONS	2500.00	125,000
.13C	ELEVATORS	1 LS	667000.00	667,000
.14	FIRE PROTECTION HEADTANK	1 LS	365000.00	365,000
.15	BUS TUNNELS			
.151	EXC HORIZONTAL 22X22	224 LF	1846.00	413,504
.152	EXC INCLINED 16X16	320 LF	1532.00	490,240
.154	BUS TUNNEL SLAB CONC	800 CY	204.00	163,200
.16	TRANSFORMER GALLERY			
.161	EXCAVATION	28800 CY	54.50	1,569,600
.164	CONCRETE SLAB	2810 CY	204.00	573,240
.167	DRAIN HOLES	8900 LF	15.00	133,500
SUDTOTAL, PAGE 4				4,500,284

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.17	CABLE SHAFTS			
.171	EXCAVATION 9' DIA	1525 LF	1266.00	1,930,650
.174	CON. LINING 7.5' DIA	1525 LF	805.00	1,227,625
.170	MISC. METALWORK	13 TONS	2500.00	32,500
.179	ENCLOSURES (ARCH.)	1 LS	60000.00	60,000
.170	MANHOIST	2 EA	154000.00	308,000
.18	CARE OF WATER	1 LS	466000.00	466,000
.19	INSTRUMENTATION	1 LS	516000.00	516,000
.2	MISC. BUILDINGS & STRUCTURES	1 LS	134000.00	134,000
SUBTOTAL, PAGE 5				4,674,775
ACCOUNT 331 POWERHOUSE				48,290,202

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
332	RESERVOIRS, DAMS AND WATERWAYS				
.1	RESERVOIR CLEARING	6350	ACRES	825.00	5,238,750
SUBTOTAL, PAGE 6					5,238,750
ACCOUNT 332.1 RESERVOIR CLEARING					5,238,750

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.2	DIVERSION TUNNELS				
.211	EXCAVATION 33 X 33	1465	LF	2351.00	3,444,215
.212	PORTALS-COMMON EXCAVATION	8550	CY	3.98	34,029
.210	PORTALS-ROCK EXC.	104200	CY	14.24	1,483,000
.214	TUNNEL CONC. LINING- 30' ID	1465	LF	1756.00	2,572,540
.215	TUNNEL PLUG CONCRETE	3000	CY	127.00	381,000
.216	PORTAL CONCRETE	5750	CY	318.09	1,829,017
.21C	DIV TUNNEL MECHANICAL	1	LS	1731000.00	1,731,000
SUBTOTAL, PAGE 7					11,475,609
ACCOUNT 332.2 DIVERSION TUNNELS					11,475,609

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.22	U/S COFFERDAM			
.221	FILL - CORE	4600 CY	19.69	90,574
.222	FILTERS	5500 CY	13.55	74,525
.22A	SHELL	19000 CY	8.50	160,300
.22B	CLOSURE DIKE	41900 CY	5.65	236,735
.22C	RIPRAP	7000 CY	4.48	31,360
.223	CUT-OFF WALL	35000 SF	24.82	868,700
.22D	CARE OF WATER	1 LS	3086000.00	3,086,000
SUOTOTAL, PAGE 8				4,556,194
ACCOUNT 332.22 D/S COFFERDAM				4,556,194

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.23	D/S COFFERDAM				
.231	REMOVAL	42000	CY	6.60	277,200
.232	CLOSURE DIKE FILL	47000	CY	5.65	265,550
.23A	RIPRAP	1650	CY	4.48	7,392
.233	CUT-OFF WALL	15000	SF	24.82	372,300
SUBTOTAL, PAGE 9					922,442
ACCOUNT 332.23 U/S COFFERDAM					922,442

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.3	MAIN DAM			
.311	EXCAVATION - COMMON	35600 CY	7.80	277,680
.312	EXCAVATION - ROCK	320700 CY	15.61	5,006,127
.313	DRILL & GROUT-CONSOL	176900 LF	18.00	3,184,200
.31A	DRILL & GROUT-CURTAIN	259000 CY	20.00	5,180,000
.314	ARCH DAM CONCRETE	1281500 CY	111.26	142,579,690
.315	THRUST BLOCK CONCRETE			
	- LEFT	75500 CY	140.63	10,617,565
	- RIGHT	30000 CY	149.48	4,484,400
.317	DRAIN HOLES	65000 LF	15.40	1,013,320
.32	GROUT GALLRS&PORTALS			
.321	HORIZ. GALLRS 10X10	3970 LF	540.00	2,143,800
SUBTOTAL, PAGE 10				174,486,782

DATE JULY 9, 1984
 FILE NO 1563-1
 PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
 FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.322	INCLINED GALLERIES 10' X 10'	1650 LF	825.00	1,361,250
.323	SHAFTS 10X10	300 LF	1927.00	578,100
.32A	ACCESS ADITS 20HX15W	1220 LF	1370.00	1,671,400
.32B	OUTLET ACCESS SHAFT 20' DIA	375 LF	2034.00	762,750
.32C	PORTALS-COMMON EXC.	28700 LF	3.98	114,226
.32D	PORTALS-ROCK EXC.	16500 LF	14.24	234,960
324	TUNNEL CONCRETE SLABS	3200 CY	204.00	652,800
.325	PORTAL CONCRETE	40 CY	300.41	12,016
.328	MISC. METALWORK	1 LS	185000.00	185,000
.329	ARCHITECTURAL	1 LS	343000.00	343,000
.32E	MECHANICAL-ELEVATOR DVHD CRANE & MISC.	1 LS	867000.00	867,000
SUDTOTAL, PAGE 11				6,702,502

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.33	DAM INSTRUMENTATION	1	LS	2605000.00:	2,605,000
SUBTOTAL, PAGE 12					2,605,000
ACCOUNT 332.3 MAIN DAM					183,874,284

DATE JULY 9, 1984
 FILE NO 1563-1
 PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
 FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.4	SADDLE DAM			
.411	EXCAVATION-COMMON	1145000 CY	2.91	3,331,950
.41A	EXCAVATION-ROCK	301000 CY	9.50	2,859,500
.412	SADDLE DAM FILL			
.41B	IMPERVIOUS CORE	313500 CY	19.69	6,172,815
.41C	FINE FILTER	231000 CY	13.55	3,130,050
.41D	COARSE FILTER	193000 CY	13.55	2,615,150
.41E	RIP RAP	174500 CY	4.40	781,760
.41F	SHELL FILL - U/S	534000 CY	8.30	4,432,200
.41G	SHELL FILL - D/S	345000 CY	8.30	2,863,500
.41H	ROCK FILL	127000 CY	3.19	405,130
SUBTOTAL, PAGE 13				26,592,055

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.413	DRILL & GRT -CONSUL	57500 LF	18.00	1,035,000
.414	DENTAL CONCRETE	7100 CY	99.50	706,450
SUBTOTAL, PAGE 14				1,741,450
ACCOUNT 332.4 SADDLE DAM				28,333,505

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.51	OUTLET FACILITIES				
	MECHANICAL & ELECTRIC	1	LS	9741000.00	9,741,000
SUBTOTAL, PAGE 15					9,741,000
ACCOUNT 332.51 OUTLET FACILITIES					9,741,000

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.52	MAIN SPILLWAY			
.521	COMMON EXC - APPROACH & CONTROL STRUCTURE	73000 CY	3.18	232,140
.522	COMMON EXC - CHUTE & FLIP BUCKET	107000 CY	3.50	374,500
.52A	RIVER CHANNEL ALLUVIUM EXCAVATION	67000 CY	5.50	368,500
.52B	ROCK EXCAVATION - APPROACH	280000 CY	10.28	2,878,400
.52B1	ROCK EXCAVATION - CONTROL STRUCTURE	230000 CY	11.41	2,624,300
.52C	ROCK EXCAVATION - CHUTE & FLIP BUCKET	819000 CY	11.41	9,344,790
.52D	HORIZONTAL DRAIN TUNNEL 10 X 10	430 CY	705.00	303,150
.52E	INCLINED DRAIN TUNNEL 10 X 10	670 LF	825.00	552,750

SUBTOTAL, PAGE 15

16,678,530

DATE JULY 9, 1984
 FILE NO 1563-1
 PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
 FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.523	DRILL&GRT - CONSOL.	22000 LF	18.00	396,000
.524	SPILLWAY CONCRETE INCL FLIP BUCKET			
.52F	PIERS (INCL. SIDE PIERS)	35800 CY	207.58	7,431,364
.52G	DECK	300 CY	585.00	175,500
.52H	GUIDE WALLS	23000 CY	277.27	6,377,210
.52I	SLAB	14500 CY	374.18	5,425,610
.52J	OGEE	24800 CY	155.62	3,859,376
.52K	FLIP BUCKET	7000 CY	246.05	1,722,350
.52L	DRAIN GALLERY CONCRETE SLAB	400 CY	204.34	81,736
.525	15' ROCKBOLTS	400 EA	127.00	50,800
SUBTOTAL, PAGE 17				25,519,946

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.526	10' ROCKBOLTS	6520 EA	85.00	554,200
.527	DRAIN HOLES	49400 LF	15.00	741,000
.52L	SPILLWAY MECH&ELECT	1 LS	4177000.00	4,177,000
SUBTOTAL, PAGE 10				5,472,200
ACCOUNT 332.52 MAIN SPILLWAY				47,670,676

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.6	POWER AND OUTLET INTAKE&APPROACH				
.611	COMMON EXCAVATION	97600	CY	2.87	280,112
.612	APPROACH - ROCK EXCAVATION	216200	CY	10.28	2,222,536
.614	CONCRETE	37900	CY	320.22	12,136,330
.615	1"X15" ROCKBOLTS	150	EA	127.00	19,050
.61C	INTAKE MECH&ELECT	1	LS	4164000.00	4,164,000
.61D	INTAKE BUILDING	1	LS	134000.00	134,000
SUBTOTAL PAGE 19					18,956,036
ACCOUNT 332.6 POWER INTAKE					18,956,036

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON -- FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.7	SURGE CHAMBER			
.711	ROCK EXCAVATION	153800 CY	63.00	9,689,400
.712	VENT SHAFT EXC(16')	850 LF	1439.00	1,223,150
.714	CONCRETE	1300 CY	377.00	490,100
.717	DRAIN HOLES	13650 LF	20.00	273,000
SUBTOTAL, PAGE 20				11,675,650
ACCOUNT 332.7 SURGE CHAMBER				11,675,650

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.8	PENSTOCKS				
.811	EXC - INCL - 24' DIA	2550	LF	2929.00	7,460,950
.81A	EXC - INCL - 20' DIA	200	LF	2034.00	406,800
.812	EXC - HORIZ - 20' DIA	950	LF	1071.00	1,017,450
.813	DRILL & GROUT-CONSOL	1	LS	150000.00	150,000
.814	PENSTOCK CONCRETE LINER-INCL -20'	2550	LF	2754.00	7,022,700
.81B	STEEL LINED INCL. 15' CONC PENST. LINER	200	LF	1254.00	250,000
.815	PENSTOCK CONCRETE LINER-HORIZ- 15' ID	950	LF	1045.00	992,750
.816	PENSTOCK CONC. PLUG	10000	CY	127.00	1,270,000
.818	STEEL LINER	2000	TON	2500.00	5,000,000
SUBTOTAL, PAGE 21					23,579,450
ACCOUNT 332.8 PENSTOCKS					23,579,450

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.9	TAILRACE			
.911	TUNNEL EXC. - 42"	6730 LF	2404.00	16,170,920
.912	PORTAL COMMON EXC	40000 CY	3.90	159,200
.913	PORTAL ROCK EXC	21000 CY	14.24	299,040
.914	TAILRACE TUNNEL CONCRETE -38' ID	6730 LF	1967.00	13,237,910
.91A	PORTAL CONCRETE	750 CY	291.04	218,280
.915	PORTAL ROCKBOLTS 1"X15'	100 EA	127.00	12,700
.91C	TAILRACE STOPLOGS GUIDES & FOLLOWERS	1 LS	27333.50	27,334
SUBTOTAL, PAGE 22				30,133,384
ACCOUNT 332.9 TAILRACE				30,133,384

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
333	WATERWHEELS, TURBINE & GENERATORS				
.11	TURBINES & GOVERNORS	4 EA		5000000.00	20,000,000
.21	GENERATORS & EXCITERS	4 EA		5500000.00	22,000,000
SUBTOTAL, PAGE 23					42,000,000
ACCOUNT 333 WATERWHEELS, TURBINES &					42,000,000

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
334	ACCESSORY ELECTRICAL EQUIPMENT	1	LS	13670000.00	13,670,000
SUBTOTAL, PAGE 24					13,670,000
ACCOUNT 334 ACCESSORY ELECTRICAL EQU					13,670,000

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
335	MISC POWER PLNT EQUIP	1	LS	10920000.00	10,920,000
SUBTOTAL, PAGE 25					10,920,000
ACCOUNT 335 MISC POWER PLANT EQUIPME					10,920,000

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
336	ROADS, RAIL & AIR FAC				
.11	PERM. ACCESS ROADS	1	LS	51413000.00:	51,413,000
.12	SITE ROADS	7	MI	4944000.00	34,608,000
.13	PERMANENT ROADS	3	MILES	500000.00.	1,500,000
.14	ROAD MAINTENANCE- CANTWELL TO WATANA	650	M-YR	9000.00 :	5,850,000
.2	RAIL FACILITIES	1	LS	25113000.00:	25,113,000

SUOTOTAL, PAGE 26					110,404,000
ACCOUNT 336 ROADS RAIL & AIR FACILIT					110,404,000

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
350-359	TRANSMISSION PLANT	1	LS	91440000.00	91,440,000
SUBTOTAL, PAGE 27					91,440,000
ACCOUNTS 350-359 TRANSMISSION PLANT					91,440,000

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
399	GENERAL PLANT	1	LS	5000000.00	5,000,000
SUBTOTAL, PAGE 28					5,000,000
ACCOUNT 399 GENERAL PLANT					5,000,000

DATE JULY 9, 1984
FILE NO 1563-1
PROJECT DEVIL CANYON - FERC SCHEME

HARZA-EBASCO JOINT VENTURE
FEASIBILITY LEVEL ESTIMATE

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
(63) CONSTRUCT. FACILITIES				
.1-.5	CONSTRUCTION CAMPS & PERMANENT VILLAGE	1 LS	53400000.00	53,400,000
.5	CATERING & SUPPORT	1059290 MD	62.50	66,205,625
.7	ELECTRIC POWER			
.71	34.5 KV SYSTEM	1 LS	2100000.00	2,100,000
.72	CAMP POWER	140300 MWH	70.00	9,821,000
.73	CONSTRUCTION POWER	50000 MWH	70.00	3,500,000
.8	CONSTRUCTION HEATING & VENTILATING			
.81	PLANT	1 LS	2465000.00	2,465,000
.82	OPERATION	1070 DAYS	4060.00	7,592,200
SUBTOTAL, PAGE 29 145,083,025				
ACCOUNT (63) CONSTRUCTION FACILITIES			145,083,025	

INDIRECT COST REPORT

DEVIL CANYON - FERC APPLICATION

FILE # 1563-103

FEASIBILITY LEVEL ESTIMATE

(L LEVY, RAM D, OEB)

SUMMARY OF INDIRECTS

MARCH 30, 1984

CONTRACT # 1 RESERVOIR CLEARING	2,146,420
CONTRACT # 2 DIVERSION TUNNEL & COFFERDAMS	5,448,250
CONTRACT # 3 MAIN DAM AND SPILLWAY	40,330,300
CONTRACT # 4 SADDLE DAM	6,918,750
CONTRACT # 5 INTAKE AND PENSTOCK	12,649,100
CONTRACT # 6 TAILRACE TUNNEL	9,800,650
CONTRACT # 7 POWERHOUSE AND SURGE CHAMBER	16,465,550
OTHER INDIRECTS (HAUL ROADS, SNOW REM, AIRPORT SERV)	27,876,000

TOTAL INDIRECT COSTS	121,635,020

NOTES: (1) THE TOTAL INDIRECT COSTS WERE ROUNDED TO
\$ 121,000,000 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: SUSITHA - DEVIL CANYON

NO. #1563X103

DATE: MARCH 28, 1984

EST. BY OEB

REV. GV/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	TOTAL
A.1 PERSONNEL - ADMINISTRATIVE	396,000	527,500	3,610,000	542,500	1,232,000	810,000	1,578,500	8,696,500
A.2 PERSONNEL - SUPERVISORY	374,000	688,500	4,114,000	714,000	1,419,500	909,500	1,854,000	10,073,500
A.3 PERSONNEL - ENGINEERING	368,000	958,000	7,297,000	1,226,000	2,516,000	1,647,000	3,302,500	17,314,500
A.4 PERSONNEL - OFFICE	96,000	318,000	2,652,000	291,000	550,000	378,000	676,500	4,961,500
A.5 PERSONNEL - PURCHASING	0	0	1,468,600	63,000	346,000	81,000	354,000	2,312,600
A.6 PERSONNEL - WAREHOUSING	0	0	2,030,000	126,000	372,000	324,000	456,000	3,308,000
A.7 PERSONNEL - MEDICAL SAFETY	0	0	838,000	84,000	248,000	33,600	320,000	1,523,600
A.8 PERSONNEL - MISCELLANEOUS	0	641,500	4,503,000	0	1,049,000	1,414,500	2,042,000	9,650,000
B. VEHICLES	96,720	638,400	5,110,000	1,147,200	1,490,100	1,444,800	1,709,000	11,636,220
C. TRAVEL AND ALLOWANCES	86,400	217,100	925,000	287,900	405,200	349,000	449,600	2,720,200
D. MISC & MAINTENANCE EXPENSES	499,300	780,250	4,728,700	919,150	1,776,800	1,358,250	2,166,450	12,228,900
E. GENERAL PLANT	230,000	679,000	3,054,000	1,518,000	1,244,500	1,051,000	1,557,000	9,333,500
GRAND TOTAL INDIRECT COSTS	2,146,420	5,448,250	40,330,300	6,918,750	12,649,100	9,800,650	16,465,550	93,759,020

1

ROJI SU: A - IL I ON
SUBJECT: RESERVOIR CLEARING.
DATE: MARCH 27, 1984

(CONTRACT #1)

EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE	396,000
A.2 PERSONNEL - SUPERVISORY	374,000
A.3 PERSONNEL - ENGINEERING	360,000
A.4 PERSONNEL - OFFICE	96,000
A.5 PERSONNEL - PURCHASING	0
A.6 PERSONNEL - WAREHOUSING	0
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	96,720
C. TRAVEL AND ALLOWANCES	86,400
D. MISC & MAINTENANCE EXPENSES	499,300
E. GENERAL PLANT	230,000
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	2,146,420

ROJE SUE IL JN
SUBJECT: RESERVOIR CLEARING.
DATE: MARCH 27, 1984

(CONTRACT #1)

N 156 J3
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE			
GENERAL SUPERINTENDENT	1.0 X 44. MO @	9000.	396,000

SUBTOTAL -	A.1 PERSONNEL - ADMINISTRATIVE	396,000
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A.2 PERSONNEL - SUPERVISORY			
MASTER MECHANIC	1.0 X 44. MO @	8500.	374,000

SUBTOTAL -	A.2 PERSONNEL - SUPERVISORY	374,000
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A.3 PERSONNEL - ENGINEERING			
FIELD ENGINEER (4)	1.0 X 32. MO @	6500.	208,000
ROD AND CHAIN MAN (4)	1.0 X 32. MO @	5000.	160,000

SUBTOTAL -	A.3 PERSONNEL - ENGINEERING	368,000
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ROJI SU: A - IL 1 ON
SUBJECT: RESERVOIR CLEARING.
DATE: MARCH 27, 1984

(CONTRACT #1)

EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE CHIEF TIMEKEEPER	1.0 X 32. MO @	3000.	96,000
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SUBTOTAL - A.4 PERSONNEL - OFFICE			96,000
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A.5 PERSONNEL - PURCHASING

SUBTOTAL - A.5 PERSONNEL - PURCHASING			0
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PROJECT: SUS... - ...
SUBJECT: RESERVOIR CLEARING.
DATE: MARCH 27, 1984

(CONTRACT #1)

NO. 0156...3
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING

0

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY

0

SUBJECT: RESERVOIR CLEARING.
DATE: MARCH 27, 1984

(CONTRACT #1)

EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

PICKUPS	1.0 X 32. MOS @	600.	19,200
PICKUPS	1.0 X 32. MOS @	600.	19,200
SERVICE TRUCKS	1.0 X 32. MOS @	800.	25,600
FORK LIFTS	1.0 X 32. MOS @	1000.	32,000
LIC FEES	3.0 X 4. MOS @	60.	720

SUBTOTAL - B. VEHICLES 96,720

C. TRAVEL AND ALLOWANCES

OF CONTRACTS = 44/18 = 2.4

TRAVEL TO JOB

MARRIED (2 X 1)	2.0 X 1. TRP @	3000.	6,000
SINGLE (2 X 1)	2.0 X 1. TRP @	2000.	4,000

SHIPMENT OF PERSONAL GOODS

MARRIED	2. EA @	15000.	30,000
SINGLE	2. EA @	8000.	16,000

TRAVEL EXPENSE-JOB CONNECTED

LOCAL TRAVEL	32. MOS @	200.	6,400
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VACATION TRAVEL

MARRIED

SINGLE

OTHER

2.0 X 3. TRP @	3000.	18,000
4.0 X 1. MOS @	1500.	6,000

SUBSISTENCE - MEN

TURN OVER FACTOR (10 %)

SUBTOTAL - C. TRAVEL AND ALLOWANCES 86,400

PROJECT: SUSUM - DEVIL CANYON
SUBJECT: RESERVOIR CLEARING
DATE: MARCH 27, 1984

(CONTRACT #1)

NL. #1565A103
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES	70. \$/SF	750.	52,500
WAREHOUSE	50. \$/SF	800.	40,000
WORKMENS SHELTERS	50. \$/SF	700.	35,000
MECHANIC SHOP	50. \$/SF	900.	45,000
SHOP TOOLS	1. LS	10000.	10,000
MISC CARPENTRY	1. LS	3000.	3,000

E.2 UTILITIES INSTALLATION

LIGHT & POWER-INSTALL&REMOVE	100. KW @	400.	40,000
TELEPHONE SYSTEM-INST&REM	1. LS	3000.	3,000
RADIO COMMUNICATIONS	1. LS.	1500.	1,500

SUBTOTAL - E. GENERAL PLANT

230,000

30
SUBJECT: RESERVOIR CLEARING.
DATE: MARCH 27, 1984

(CONTRACT #1)

EST. 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

2,146,420

2

DOE SUS LS ON
SUBJECT: DIVERSION TUNNEL/COFFERDAMS
DATE: MARCH 27, 1984

(CONTRACT #2)

N 156 3
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE	527,500
A.2 PERSONNEL - SUPERVISORY	688,500
A.3 PERSONNEL - ENGINEERING	958,000
A.4 PERSONNEL - OFFICE	318,000
A.5 PERSONNEL - PURCHASING	0
A.6 PERSONNEL - WAREHOUSING	0
A.7 PERSONNEL - MISCELLANEOUS	641,500
B. VEHICLES	638,400
C. TRAVEL AND ALLOWANCES	217,100
D. MISC & MAINTENANCE EXPENSES	780,250
E. GENERAL PLANT	679,000
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	5,448,250

ROJ... SU...A - ... ILS ...YON
SUBJECT: DIVERSION TUNNEL/COFFERDAMS
DATE: MARCH 27, 1984

(CONTRACT #2)

I #156...03
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 25. MO @	10000.	250,000
GENERAL SUPERINTENDENT	1.0 X 25. MO @	9000.	225,000
SECRETARY	1.0 X 21. MO @	2500.	52,500

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE

527,500

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - EXCAVATION	2.0 X 13. MO @	8500.	221,000
SUPERINTENDENT - TUNNEL	2.0 X 15. MO @	8500.	255,000
SUPERINTENDENT - EQUIPMENT	1.0 X 25. MO @	8500.	212,500

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY

688,500

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 25. MO @	9000.	225,000
FIELD ENGINEER	1.0 X 25. MO @	6500.	162,500
COST ENGINEER	1.0 X 25. MO @	6500.	162,500
DRAFTSMAN	1.0 X 25. MO @	4000.	100,000
INSTRUMENTMAN	2.0 X 14. MO @	6000.	168,000
ROD AND CHAIN MAN	2.0 X 14. MO @	5000.	140,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING

958,000

PROJECT: SUS - DETAILS L. ON
SUBJECT: DIVERSION TUNNEL/COFFERDAMS
DATE: MARCH 27, 1984

(CONTRACT #2)

NL 156. 3
EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER
TIMEKEEPERS
CLERKS
STENOGRAPHERS

1.0 X 25. MO @	6000.	150,000
1.0 X 21. MO @	2500.	52,500
1.0 X 21. MO @	2500.	52,500
1.0 X 21. MO @	3000.	63,000

SUBTOTAL - A.4 PERSONNEL - OFFICE

318,000

A.5 PERSONNEL - PURCHASING

SUBTOTAL - A.5 PERSONNEL - PURCHASING

0

PROJECT: SUSUNA - DEVILS CANYON
SUBJECT: DIVERSION TUNNEL/COFFERDAMS (CONTRACT #2)
DATE: MARCH 27, 1984

NO. #1565X103
EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 0

A.7 PERSONNEL - MISCELLANEOUS

DRIVER - CHAUFFERS	1.0 X 18. MO @	4000.	72,000
DRILL DOCTOR	1.0 X 10. MO @	6000.	60,000
CR OPERATOR	1.0 X 18. MO @	8000.	144,000
OILER	1.0 X 18. MO @	5300.	95,500
BULL GANG 1 SH FORE	1.0 X 15. MO @	6000.	90,000
3 LAB	3.0 X 15. MO @	4000.	180,000

SUBTOTAL - A.7 PERSONNEL - MISCELLANEOUS 641,500

PROJECT: SUBMITTAL - LEVELS DIVISION
 SUBJECT: DIVERSION TUNNEL/COFFERDAMS (CONTRACT #2)
 DATE: MARCH 27, 1984

NO. 1563.33
 EST. BY OEB
 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	75. MOS @	600.	45,000
PICK UPS	78. MOS @	600.	46,800
PICK UPS	78. MOS @	600.	46,800
FLATBEDS	18. MOS @	600.	10,800
SERVICE TRUCKS	1.0 X 26. MOS @	800.	20,800
TRUCK CRANES	1.0 X 18. MOS @	15000.	270,000
MAN HAUL	1.0 X 21. MOS @	7000.	147,000
GRADER	1.0 X 5. MOS @	10000.	50,000
VEHICLE LICENSE & FEES	10.0 X 2. YR @	60.	1,200

SUBTOTAL - B. VEHICLES 638,400

C. TRAVEL AND ALLOWANCES

* OF CONTRACTS - 25/18 - 1

TRAVEL TO JOB			
MARRIED	6.0 X 1. TRP @	3000.	18,000
SINGLE	5.0 X 1. TRP @	2000.	10,000
SHIPMENT OF PERSONAL GOODS			
MARRIED	6. EA @	15000.	90,000
SINGLE	5. EA @	8000.	40,000
TRAVEL EXPENSE-JOB CONNECTED			
LOCAL TRAVEL	21. MOS @	600.	12,600
VACATION TRAVEL			
MARRIED			
SINGLE			
SUBSISTENCE - MEN	11.0 X 1. MOS @	1500.	16,500
TURN OVER FACTOR (10 %)	1. MEN @	30000.	30,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 217,100

PROJECT: SUSTANA - DEVILS CANYON
SUBJECT: DIVERSION TUNNEL/COFFERDAMS (CONTRACT #2)
DATE: MARCH 27, 1984

NO. #15007.103
EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES&MAINTENANCE

OFFICE SUPPLIES	21. MOS @	250.	5,250
OFFICE RENT-	25. MOS @	500.	12,500
OFFICE EQUIPMENT	25. MOS @	700.	17,500
ENGINEERING SUPPLIES	21. MOS @	400.	8,400
ENGINEERING EQUIPMENT-RENTAL	25. MOS @	700.	17,500
PHOTOS AND REPRODUCTIONS	21. MOS @	300.	6,300
OUTSIDE ENGINEERING EXPENSE	1. LS	30000.	30,000
CONSULTANT EXPENSE	1. LS	30000.	30,000
AIR FREIGHT	21. MOS @	3000.	63,000
WAREHOUSE & PURCHASE AIR	21. MOS @	400.	8,400
SAFETY & FIRST AID SUPPLIES	21. MOS @	2500.	52,500
BUILDING MAINTENANCE	25. MOS @	1500.	37,500
TELEPHONE & TELEX	21. MOS @	2500.	52,500
JANITORIAL SERVICES	21. MOS @	3000.	63,000
SANITARY FACILITIES/CHEM TOIL.	21. MOS @	600.	12,600
DRINKING WATER AND ICE.	21. MOS @	600.	12,600
RADIO COMMUNICATIONS	21. MOS @	800.	16,800
LEGAL	1. LS	15000.	15,000
AUDIT	1. LS	15000.	15,000
HOME OFFICE TRAVEL-TO JOBSITE	20. TRP @	4000.	80,000
ENTERTAINMENT, DONA & CONTRIB.	21. MOS @	700.	14,700
DUES, FEES, ADV. & SUBS	21. MOS @	100.	2,100
TEST MATERIALS	1. LS	8000.	8,000
FIRE PROTECT. PERMITS	1. LS	10000.	10,000
PERMITS	1. LS	3000.	3,000
POSTAGE	21. MOS @	100.	2,100
MISC. JOB ROAD/YARDS MAINT.	1. LS	15000.	15,000
HEAT	25. EA	600.	15,000
POWER (OFF, SHOP)			
200KW X30%X20HRX25DAX .135	21. MOS @	4000.	84,000
COMPUTER SERVICES	1. LS @	70000.	70,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES 780,250

3

PROJ Su RA TILS YON
SUBJECT: MAIN DAM & SPILLWAY
DATE: MARCH 27, 1984

(CONTRACT #3)

EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE	3,610,000
A.2 PERSONNEL - SUPERVISORY	4,114,000
A.3 PERSONNEL - ENGINEERING	7,297,000
A.4 PERSONNEL - OFFICE	2,652,000
A.5 PERSONNEL - PURCHASING	1,468,600
A.6 PERSONNEL - WAREHOUSING	2,030,000
A.7 PERSONNEL - MEDICAL SAFETY	830,000
A.8 PERSONNEL - MISCELLANEOUS	4,503,000
B. VEHICLES	5,110,000
C. TRAVEL AND ALLOWANCES	925,000
D. MISC & MAINTENANCE EXPENSES	4,720,700
E. GENERAL PLANT	3,054,000
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	40,330,300

PRG. S. NA VILL. NYD.
SUBJECT: MAIN DAM & SPILLWAY
DATE: MARCH 27, 1984

(CONTRACT #3)

EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 68. MO 0	10000.	680,000
ADMINISTRATIVE MANAGER	1.0 X 60. MO 0	9500.	570,000
CONTRACT ADMINISTRATOR	1.0 X 68. MO 0	8500.	580,000
GENERAL SUPERINTENDENT	1.0 X 68. MO 0	9000.	610,000
ASST. GENERAL SUPERINTENDENT	2.0 X 60. MO 0	8500.	1,020,000
SECRETARY	1.0 X 60. MO 0	2500.	150,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 3,610,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - LABOR	1.0 X 53. MO 0	8500.	450,500
SUPERINTENDENT - EXCAVATION	1.0 X 32. MO 0	8500.	272,000
SUPERINTENDENT - QUARRY	1.0 X 53. MO 0	8500.	450,500
SUPERINTENDENT - CARPENTER	1.0 X 53. MO 0	8500.	450,500
SUPERINTENDENT - CONCRETE	1.0 X 53. MO 0	8500.	450,500
SUPERINTENDENT - ELECTRICAL	1.0 X 60. MO 0	8500.	510,000
SUPERINTENDENT - EQUIPMENT	1.0 X 60. MO 0	8500.	510,000
MASTER MECHANIC	2.0 X 60. MO 0	8500.	1,020,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 4,114,000

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 68. MO 0	9000.	610,000
OFFICE ENGINEER	1.0 X 68. MO 0	6500.	442,000
FIELD ENGINEER	2.0 X 60. MO 0	6500.	780,000
COST ENGINEER	2.0 X 68. MO 0	6500.	885,000
MATERIAL ENGINEER	1.0 X 60. MO 0	6500.	390,000
PROGRESS ENGINEER	1.0 X 60. MO 0	6500.	390,000
DRAFTSMAN	3.0 X 45. MO 0	4000.	540,000
PARTY CHIEF	2.0 X 60. MO 0	6500.	780,000
INSTRUMENTMAN	2.0 X 60. MO 0	6000.	720,000
ROD AND CHAIN MAN	4.0 X 60. MO 0	5000.	1,200,000
SECRETARY	2.0 X 56. MO 0	2500.	280,000
CLERICAL	2.0 X 56. MO 0	2500.	280,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 7,297,000

PRL. S. HA. VIL. NYL.
SUBJECT: MAIN DAM & SPILLWAY
DATE: MARCH 27, 1984

(CONTRACT #3)

EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 60. MO @	6000.	400,000
ACCOUNTANTS	1.0 X 60. MO @	3500.	210,000
PERSONNEL MANAGER	1.0 X 60. MO @	4000.	240,000
CHIEF TIMEKEEPER	1.0 X 60. MO @	3000.	204,000
TIMEKEEPERS	2.0 X 60. MO @	2500.	300,000
PAYMASTER	1.0 X 60. MO @	3000.	180,000
CLERKS	3.0 X 56. MO @	2500.	420,000
STENOGRAPHERS	2.0 X 56. MO @	2500.	280,000
SWITCHBOARD-RECEPTIONIST	1.0 X 56. MO @	2500.	140,000
JANITORS	2.0 X 45. MO @	3000.	270,000

SUBTOTAL - A.4 PERSONNEL - OFFICE 2,652,000

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 56. MO @	5000.	280,000
BUYERS	2.0 X 56. MO @	5600.	625,000
CLERKS	1.0 X 50. MO @	5000.	250,000
EXPEDITOR	1.0 X 56. MO @	5600.	313,600

SUBTOTAL - A.5 PERSONNEL - PURCHASING 1,468,600

SUBJECT: MAIN DAM & SPILLWAY
DATE: MARCH 27, 1984

(CONTRACT #3)

EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 68. MD 0	6800.	462,400
WAREHOUSEMAN	4.0 X 56. MD 0	5600.	1,254,000
RECEIVING CLERK	1.0 X 56. MD 0	5600.	313,600

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 2,030,000

A.7 PERSONNEL - MEDICAL SAFETY

NURSES	2.0 X 56. MD 0	4000.	440,000
SAFETY ENGINEER	1.0 X 60. MD 0	6500.	390,000

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 830,000

A.8 PERSONNEL - MISCELLANEOUS

DRIVERS - CHAUFFERS	4.0 X 50. MOS 0	2500.	500,000
ELECTRICIAN-RADIO TECH	1.0 X 56. MOS 0	5500.	300,000
LABOR	4.0 X 40. MOS 0	6000.	960,000
MISC. CARPENTRY	2.0 X 53. MOS 0	6000.	635,000
FUEL DEPOT LABOR	2.0 X 60. MOS 0	6000.	720,000
CR OPERATOR	2.0 X 53. MOS 0	6500.	690,000
OILER	2.0 X 53. MOS 0	6500.	690,000

SUBTOTAL - A.8 PERSONNEL - MISCELLANEOUS 4,503,000

SUBJECT: MAIN DAM & SPILLWAY
DATE: MARCH 27, 1984

(CONTRACT #3)

EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	10.0 X 34. MOS @	600.	204,000
PICK UPS	10.0 X 40. MOS @	600.	200,000
SERVICE TRUCKS	10.0 X 12. MOS @	800.	96,000
TRUCK CRANES	1.0 X 56. MOS @	15000.	840,000
MAN HAUL 3 @ 60	3.0 X 60. MOS @	7800.	1,404,000
FUEL TRUCK	1.0 X 56. MOS @	8000.	440,000
HYD CRANE	2.0 X 56. MOS @	15000.	1,680,000
GRADER	1.0 X 15. MOS @	10000.	150,000

SUBTOTAL - B. VEHICLES 5,110,000

C. TRAVEL AND ALLOWANCES

* OF CONTRACTS = 60/18 = 4

TRAVEL TO JOB			
MARRIED	26.0 X 1. TRP @	3000.	78,000
SINGLE	12.0 X 1. TRP @	2000.	24,000
SHIPMENT OF PERSONAL GOODS			
MARRIED	26. EA @	15000.	390,000
SINGLE	12. EA @	8000.	96,000
TRAVEL EXPENSE-JOB CONNECTED			
LOCAL TRAVEL	60. MOS @	500.	34,000
VACATION TRAVEL DURING SHUTDOWN			
OTHER	21.0 X 3. TRP @	2000.	126,000
SUBSISTENCE - MEN	30.0 X 1. MOS @	1500.	57,000
TURN OVER FACTOR (10 X)	4. MEN @	30000.	120,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 925,000

PROJ. : S... NA ...VILLE ...NYO.
SUBJECT: MAIN DAM & SPILLWAY
DATE: MARCH 27, 1984

(CONTRACT #3)

NO. #1555X103
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES&MAINTENANCE

OFFICE SUPPLIES	56. MOS @	500.	20,000
OFFICE RENT	60. MOS @	2500.	170,000
OFFICE EQUIPMENT	60. MOS @	1500.	102,000
ENGINEERING SUPPLIES	56. MOS @	1000.	56,000
ENGINEERING EQUIPMENT-RENTAL	60. MOS @	3000.	204,000
PHOTOS AND REPRODUCTIONS	56. MOS @	1000.	56,000
OUTSIDE ENGINEERING EXPENSE	1. LS	200000.	200,000
CONSULTANT EXPENSE	1. LS @	200000.	200,000
AIR FREIGHT	56. MD @	12000.	670,000
SAFETY & FIRST AID SUPPLIES	56. MOS @	11000.	615,000
BUILDING MAINTENANCE	56. MOS @	6000.	336,000
TELEPHONE & TELEX	56. MOS @	4500.	252,000
JANITORIAL SERVICES	56. MOS @	10000.	560,000
SANITARY FACILITIES CHEM TOIL	56. MOS @	3000.	160,000
DRINKING WATER AND ICE	56. MOS @	2000.	112,000
RADIO COMMUNICATIONS MAINT.	56. MOS @	5000.	280,000
LEGAL EXPENSE	1. LS	100000.	100,000
AUDIT	1. LS	100000.	100,000
HOME OFFICE TRAVEL-TO JOBSITE	50. TRP @	4000.	200,000
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	1. LS	5000.	5,000
POSTAGE	56. MOS @	100.	5,600
MISC. JOB ROAD AND YARDS MAIN.	1. LS	50000.	50,000
COMPUTER SERVICES	1. LS	150000.	150,000
HEAT	1. LS	2500.	2,500
POWER (OFF & SHOP)			
400KW X40XX20HRX25HRX .135	1. LS	10000.	10,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES

4,720,700

PRG. : 51 4A 71L 7Y0
SUBJECT: MAIN DAM & SPILLWAY
DATE: MARCH 27, 1984

(CONTRACT #3)

EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES	70. \$/SF	7200.	505,000
WAREHOUSE	50. \$/SF	7000.	350,000
GENERAL YARD AND SITE GRADING	5. \$/SF	150000.	750,000
HOSPITAL OR FIRST AID TRAILER	70. \$/SF	700.	49,000
INSPECTOR FIELD OFFICES	50. \$/SF	1000.	50,000
CONCRETE TESTING FACILITIES	60. \$/SF	800.	48,000
FIELD OFFICE	60. \$/SF	1800.	108,000
WORKMENS SHELTERS	50. \$/SF	8000.	400,000
TOOL SHEDS	40. \$/SF	400.	16,000
POWDER HOUSE	1. LS	10000.	10,000
CAP HOUSE	1. LS	3000.	3,000
CARPENTERS SHOP&FORM PLATFORM	40. \$/SF	3600.	144,000
ELECTRICAL REPAIR SHOP	50. \$/SF	300.	15,000
FUEL STORAGE	1. LS	10000.	10,000
SERVICE STATION	1. LS	16000.	16,000
MECHANIC SHOP-TIRE-SHOP TOOLS	50. \$/SF	4000.	200,000
SHOP TOOL	1. LS	50000.	50,000
MISC. CARPENTRY	1. LS	50000.	50,000

E.2 UTILITIES INSTALLATION

LIGHT&POWER INST&REM	400. KW	400.	160,000
TELEPHONE INST&REM	1. LS	20000.	20,000
RADIO COMMUNICATIONS	1. LS	100000.	100,000

SUBTOTAL - E. GENERAL PLANT

3,054,000

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SUBJECT: MAIN DAM & SPILLWAY
DATE: MARCH 27, 1984

(CONTRACT #3)

#15 03
EST. 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

40,330,300

4

PROJECT: SUCUMBA - DETAIL CONSTRUCTION

SUBJECT: SADDLE DAM

DATE: MARCH 27, 1984

(CONTRACT #4)

NO. 156...J3

EST. BY DEB

REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE	542,500
A.2 PERSONNEL - SUPERVISORY	714,000
A.3 PERSONNEL - ENGINEERING	1,226,000
A.4 PERSONNEL - OFFICE	291,000
A.5 PERSONNEL - PURCHASING	63,000
A.6 PERSONNEL - WAREHOUSING	126,000
A.7 PERSONNEL - MEDICAL SAFETY	84,000
B. VEHICLES	1,147,200
C. TRAVEL AND ALLOWANCES	287,900
D. MISC & MAINTENANCE EXPENSES	919,150
E. GENERAL PLANT	1,510,000
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	6,918,750

ROJL SU: A - IL ON
SUBJECT: SADDLE DAM
DATE: MARCH 27, 1984

(CONTRACT #4)

156 13
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

GENERAL SUPERINTENDENT:	1.0 X 31. MO @	9000.	279,000
ASST. GENERAL SUPERINTENDENT	1.0 X 31. MO @	8500.	263,500

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 542,500

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - LABOR	1.0 X 21. MO @	8500.	178,500
SUPERINTENDENT - EXCAVATION	2.0 X 21. MO @	8500.	357,000
MASTER MECHANIC	1.0 X 21. MO @	8500.	178,500

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 714,000

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 31. MO @	9000.	279,000
OFFICE ENGINEER	1.0 X 31. MO @	6500.	201,500
FIELD ENGINEER	1.0 X 21. MO @	6500.	136,500
COST ENGINEER	1.0 X 21. MO @	6500.	136,500
SOILS ENGINEER	1.0 X 21. MO @	6500.	136,500
INSTRUMENTMAN	1.0 X 21. MO @	6000.	126,000
ROD AND CHAIN MAN	2.0 X 21. MO @	5000.	210,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 1,226,000

ROJE SUE 3 - IL ()N
SUBJECT: SADDLE DAM
DATE: MARCH 27, 1984

(CONTRACT #4)

156 13
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE				
OFFICE MANAGER	1.0 X 31. MO @	6000.	186,000	
TIMEKEEPERS	1.0 X 21. MO @	2500.	52,500	
STENOGRAPHER	1.0 X 21. MO @	2500.	52,500	

SUBTOTAL -	A.4 PERSONNEL - OFFICE	291,000
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A.5 PERSONNEL - PURCHASING				
BUYERS	1.0 X 21. MO @	3000.	63,000	

SUBTOTAL -	A.5 PERSONNEL - PURCHASING	63,000
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SUBJECT: SADDLE DAM
DATE: MARCH 27, 1984

(CONTRACT #4)

EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING
WAREHOUSEMAN

1.0 X 21. MO @ 6000. 126,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING

126,000

A.7 PERSONNEL - MEDICAL SAFETY

NURSES

1.0 X 21. MO @ 4000. 84,000

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY

84,000

A.8 MISCELLANEOUS

MISC. CARP.
JOB CLEANUP

1.0 X 20. MO @ 6000. 120,000
1.0 X 20. MO @ 5000. 100,000

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS
PICK UPS
SERVICE TRUCKS
MAN HAUL
FUEL TRUCK
HYD CRANE

93. MOS @ 600. 56,000
73. MOS @ 600. 43,000
1.0 X 21. MOS @ 800. 16,800
2.0 X 21. MOS @ 7000. 327,600
1.0 X 21. MOS @ 8000. 168,000
1.0 X 21. MOS @ 15000. 315,000

SUBTOTAL - B. VEHICLES

1,147,200

C. TRAVEL AND ALLOWANCES

OF CONTRACTS = 31/10 = 1

TRAVEL TO JOB

MARRIED
SINGLE

9.0 X 1. TRP @ 3000. 27,000
4.0 X 1. TRP @ 2000. 8,000

SHIPMENT OF PERSONAL GOODS

MARRIED
SINGLE

9. EA @ 15000. 135,000
4. EA @ 8000. 32,000

LOCAL TRAVEL	2. MOS @	100.	200
VACATION TRAVEL			3,400
MARRIED			
SINGLE			
OTHER	7.0 X 2. TRP @	2000.	28,000
SUBSISTENCE - MEN	13.0 X 1. MOS @	1500.	19,500
TURN OVER FACTOR (10 %)	1. MEN @	30000.	30,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 287,900

ROJE SUE 3 - IL C ON
SUBJECT: SADDLE DAM
DATE: MARCH 27, 1984

(CONTRACT #4)

15E 13
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES&MAINTENANCE

OFFICE SUPPLIES	21. MOS @	250.	5,250
OFFICE RENT -	31. MOS @	600.	18,600
OFFICE EQUIPMENT	31. MOS @	800.	24,800
ENGINEERING SUPPLIES	21. MOS @	400.	8,400
ENGINEERING EQUIPMENT-RENTAL	31. MOS @	800.	24,800
PHOTOS AND REPRODUCTIONS	21. MOS @	400.	8,400
OUTSIDE ENGINEERING EXPENSE	1. LS	5000.	5,000
CONSULTANT EXPENSE	1. LS	50000.	50,000
AIR FREIGHT	21. MOS @	5000.	105,000
SAFETY & FIRST AID SUPPLIES	21. MOS @	3000.	63,000
BUILDING MAINTENANCE	21. MOS @	2000.	42,000
TELEPHONE & TELEX	21. MOS @	3500.	73,500
JANITORIAL SERVICES	21. MOS @	4000.	84,000
SANITARY FACILITIES CHEM TOIL.	21. MOS @	800.	16,800
DRINKING WATER AND ICE	21. MOS @	800.	16,800
RADIO COMMUNICATIONS	1. LS	1000.	1,000
AUDIT	1. LS	25000.	25,000
LEGAL EXPENSE	1. LS	25000.	25,000
HOME OFFICE TRAVEL-TO JOBSITE	15. TRP @	4000.	60,000
ENTERTAINMENT, DONA & CONTRIB.	21. MOS @	800.	16,800
DUES, FEES, ADVERTISING & SUBS.	21. MOS @	100.	2,100
TEST MATERIALS	1. LS	8000.	8,000
FIRE PROTECTION	1. LS	10000.	10,000
PERMITS	1. LS	3000.	3,000
POSTAGE	21. MOS @	100.	2,100
MISC. JOB ROAD/YARDS MAINT.	1. LS	20000.	20,000
HEAT	31. MO	800.	24,800
POWER	21. MO	5000.	105,000
COMPUTER SERVICES	1. LS	70000.	70,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES

919,150

PROJECT: SUS. DAM - SADDLE DAM

SUBJECT: SADDLE DAM

DATE: MARCH 27, 1984

(CONTRACT #4)

REV. 138

EST. BY DEB

REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES	70. \$/SF	2000.	140,000
WAREHOUSE	50. \$/SF	2000.	100,000
GENERAL YARD AND SITE GRADING	5. \$/SF	150000.	750,000
INSPECTOR FIELD OFFICES	50. \$/SF	1000.	50,000
WORKMENS SHELTERS	50. \$/SF	2000	100,000
TOOL SHEDS	40. \$/SF	100.	4,000
POWDER HOUSE	1. LS	3000.	3,000
CAP HOUSE	1. LS	1000.	1,000
CARPENTERS SHOP/FORM PLTFORM	40. \$/SF	600.	24,000
FUEL STORAGE	1. LS	6000.	6,000
SERVICE STATION	1. LS	20000.	20,000
MECHANIC SHOP	50. \$/SF	3000.	150,000
SHOP TOOLS	1. LS	25000.	25,000
MISC CARPENTRY	1. LS	15000.	15,000

E.1 UTILITIES INSTALLATION

LIGHT & POWER-INSTALL & REMOVE	200. KW	400.	80,000
TELEPHONE SYSTEM-INSTALL & REM	1. LS	20000.	20,000
RADIO COMMUNICATIONS	1. LS	30000.	30,000

SUBTOTAL - E. GENERAL PLANT

1,510,000

PROJECT: SADDLE DAM - GENERAL CONTRACT

SUBJECT: SADDLE DAM

DATE: MARCH 27, 1984

(CONTRACT C4)

EST. BY OFD

REV. L. LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES	70. \$/SF	2000.	140,000
WAREHOUSE	50. \$/SF	2000.	100,000
GENERAL YARD AND SITE GRADING	5. \$/SF	150000.	750,000
INSPECTOR FIELD OFFICES	50. \$/SF	1000.	50,000
WORKMENS SHELTERS	50. \$/SF	2000.	100,000
TOOL SHEDS	40. \$/SF	100.	4,000
POWDER HOUSE	1. LS	3000.	3,000
CAP HOUSE	1. LS	1000.	1,000
CARPENTERS SHOP/FORM PLTFORM	40. \$/SF	600.	24,000
FUEL STORAGE	1. LS	6000.	6,000
SERVICE STATION	1. LS	20000.	20,000
MECHANIC SHOP	50. \$/SF	3000.	150,000
SHOP TOOLS	1. LS	25000.	25,000
MISC CARPENTRY	1. LS	15000.	15,000

E.1 UTILITIES INSTALLATION

LIGHT & POWER-INSTALL & REMOVE	200. KW	400.	80,000
TELEPHONE SYSTEM-INSTALL & REM	1. LS	20000.	20,000
RADIO COMMUNICATIONS	1. LS	30000.	30,000

SUBTOTAL - E. GENERAL PLANT

1,510,000

PROJECT: SUSANNA - CIVIL C... N
SUBJECT: SADDLE DAM
DATE: MARCH 27, 1984

(CONTRACT #4)

NO. 0156...J3
EST. BY OED
REV. L. LEVY

MARZA & 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

6,910,750

5

PROJECT: SUSIINA - DEVIL CANYON
SUBJECT: INTAKE & PENSTOCK (CONTRACT 05)
DATE: MARCH 27, 1984

NO. 01563X103
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS
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A.1 PERSONNEL - ADMINISTRATIVE	1,232,000
A.2 PERSONNEL - SUPERVISORY	1,419,500
A.3 PERSONNEL - ENGINEERING	2,516,000
A.4 PERSONNEL - OFFICE	550,000
A.5 PERSONNEL - PURCHASING	346,000
A.6 PERSONNEL - WAREHOUSING	372,000
A.7 PERSONNEL - MEDICAL SAFETY	248,000
A.8 PERSONNEL - MISCELLANEOUS	1,049,000
B. VEHICLES	1,490,100
C. TRAVEL AND ALLOWANCES	405,200
D. MISC & MAINTENANCE EXPENSES	1,776,000
E. GENERAL PLANT	1,244,500
F. INSURANCE AND TAXES	0
G. BONDS	0
GRAND TOTAL INDIRECT COSTS	12,649,100

PROJECT: SUSIINA - DEVIL CANYON
SUBJECT: INTAKE & PENSTOCK (CONTRACT 05)
DATE: MARCH 27, 1984

NO. 01563X103
EST. BY OED
REV. L LEVY

WARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE	1,232,000
A.2 PERSONNEL - SUPERVISORY	1,419,500
A.3 PERSONNEL - ENGINEERING	2,516,000
A.4 PERSONNEL - OFFICE	550,000
A.5 PERSONNEL - PURCHASING	346,000
A.6 PERSONNEL - WAREHOUSING	372,000
A.7 PERSONNEL - MEDICAL SAFETY	248,000
A.8 PERSONNEL - MISCELLANEOUS	1,049,000
B. VEHICLES	1,490,100
C. TRAVEL AND ALLOWANCES	405,200
D. MISC & MAINTENANCE EXPENSES	1,776,800
E. GENERAL PLANT	1,244,500
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	12,649,100

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SUBJECT: INTAKE & PENSTOCK (CONTRACT #5)
DATE: MARCH 27, 1984

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EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE	1,232,000
A.2 PERSONNEL - SUPERVISORY	1,419,500
A.3 PERSONNEL - ENGINEERING	2,516,000
A.4 PERSONNEL - OFFICE	550,000
A.5 PERSONNEL - PURCHASING	346,000
A.6 PERSONNEL - WAREHOUSING	372,000
A.7 PERSONNEL - MEDICAL SAFETY	240,000
A.8 PERSONNEL - MISCELLANEOUS	1,049,000
B. VEHICLES	1,490,100
C. TRAVEL AND ALLOWANCES	405,200
D. MISC & MAINTENANCE EXPENSES	1,776,000
E. GENERAL PLANT	1,244,500
F. INSURANCE AND TAXES	0
G. BONDS	0
GRAND TOTAL INDIRECT COSTS	12,649,100

PROJECT: SUSITNA - DEVIL CANYON
SUBJECT: INTAKE & PENSTOCK (CONTRACT #5)
DATE: MARCH 27, 1984

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

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 32. MO @	10000.	320,000
CONTRACT ADMINISTRATOR	1.0 X 32. MO @	8500.	272,000
GENERAL SUPERINTENDENT	1.0 X 32. MO @	9000.	288,000
ASST. GENERAL SUPERINT.	1.0 X 32. MO @	8500.	272,000
SECRETARY	1.0 X 32. MO @	2500.	80,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 1,232,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - LABOR	1.0 X 32. MO @	8500.	272,000
SUPERINTENDENT - TUNNEL	2.0 X 26. MO @	8500.	442,000
SUPERINTENDENT - CARPENTER	1.0 X 21. MO @	8500.	178,500
SUPERINTENDENT - CONCRETE	1.0 X 21. MO @	8500.	178,500
SUPERINTENDENT - RIGGING	1.0 X 9. MO @	8500.	76,500
MASTER MECHANIC	1.0 X 32. MO @	8500.	272,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 1,419,500

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 32. MO @	9000.	288,000
OFFICE ENGINEER	1.0 X 32. MO @	6500.	208,000
FIELD ENGINEER	2.0 X 32. MO @	6500.	416,000
COST ENGINEER	1.0 X 32. MO @	6500.	208,000
PROGRESS ENGINEER	1.0 X 32. MO @	6500.	208,000
DRAFTSMAN	2.0 X 30. MO @	4000.	240,000
PARTY CHIEF	1.0 X 32. MO @	6500.	208,000
INSTRUMENTMAN	2.0 X 30. MO @	6000.	360,000
ROD AND CHAIN MAN	2.0 X 30. MO @	5000.	300,000
SECRETARY	1.0 X 32. MO @	2500.	80,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 2,516,000

PROJECT: SUSANA - DEVIL CANYON
SUBJECT: INTAKE & PENSTOCK (CONTRACT #5)
DATE: MARCH 27, 1984

NO. #1565X103
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

WAREHOUSEMAN	2.0 X 31. MO @	6000.	372,000
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SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 372,000

A.7 PERSONNEL - MEDICAL SAFETY

NURSES	2.0 X 31. MO @	4000.	248,000
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SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 248,000

A.8 MISCELLANEOUS

DRIVERS - CHAUFFEURS	2.0 X 31. MO @	2500.	155,000
MISC CARPENTRY	2.0 X 31. MO @	6000.	372,000
BULL GANG	3.0 X 26. MO @	6000.	468,000
DRILL DOC.	1.0 X 9. MO @	6000.	54,000

SUBTOTAL - A.8 PERSONNEL - MISCELLANEOUS 1,049,000

PROJECT: SUSITNA - DEVIL CANYON
 SUBJECT: INTAKE & PENSTOCK (CONTRACT #5)
 DATE: MARCH 27, 1984

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

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	3.0 X 32. MOS @	600.	57,500
PICK UPS	10.0 X 21. MOS @	600.	126,000
PICK UPS	1.0 X 3. MOS @	600.	1,800
FLATBED	1.0 X 32. MOS @	0.	0
SERVICE TRUCKS	1.0 X 32. MOS @	800.	25,600
HYD CRANE	2.0 X 25. MOS @	15000.	750,000
BUS	2.0 X 32. MOS @	7000.	499,200
GRADER	1.0 X 3. MOS @	10000.	30,000

SUBTOTAL - B. VEHICLES 1,490,100

C. TRAVEL AND ALLOWANCES

OF CONTRACTS = 32/18 = 2

TRAVEL TO JOB

MARRIED

12.0 X 1. TRP @ 3000. 36,000

SINGLE

8.0 X 1. TRP @ 2000. 16,000

SHIPMENT OF PERSONAL GOODS

MARRIED

12. EA @ 15000. 180,000

SINGLE

8. EA @ 8000. 64,000

TRAVEL EXPENSE-JOB CONNECTED

LOCAL TRAVEL

32. MOS @ 600. 19,200

VACATION TRAVEL

MARRIED

SINGLE

SUBSISTENCE - MEN

20.0 X 1. MOS @ 1500. 30,000

TURN OVER FACTOR (10 %)

2. MEN @ 30000. 60,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 405,200

PROJECT: SUSITNA - DEVIL CANYON
SUBJECT: INTAKE & PENSTOCK (CONTRACT #5)
DATE: MARCH 27, 1984

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

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES	70. \$/SF	3200.	224,000
WAREHOUSE	50. \$/SF	3200.	160,000
GENERAL YARD AND SITE GRADING	5. \$/SF	60000.	300,000
HOSPITAL OR FIRST AID TRAILER	70. \$/SF	200.	14,000
CONCRETE TESTING FACILITIES	60. \$/SF	200.	12,000
INSPE. FIELD OFFICE	50. \$/SF	200.	10,000
FIELD OFFICE	60. \$/SF	400.	24,000
WORKMENS SHELTERS	50. \$/SF	3000.	150,000
TOOL SHEDS	40. \$/SF	200.	8,000
POWDER HOUSE	1. LS	4000.	4,000
CAP HOUSE	1. LS	1500.	1,500
CARPENTERS SHOP	40. \$/SF	1200.	48,000
FUEL STORAGE	1. LS	6000.	6,000
SERVICE STATION	1. LS	20000.	20,000
MECHANIC SHOP	50. \$/SF	2000.	100,000
SHOP TOOLS	1. LS	25000.	25,000
MISC. CARPENTRY	1. LS	20000.	20,000
LIGHT & POWER	200. KW	400.	80,000
TELEPHONE SYSTEM	1. LS	8000.	8,000
RADIO COMMUNICATION	1. LS	30000.	30,000

SUBTOTAL - E. GENERAL PLANT

1,244,500

PROJ. SU...A - ...IL ...ON
SUBJECT: INTAKE & PENSTOCK (CONTRACT #5)
DATE: MARCH 27, 1984

... #150...03
EST. 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 12,649,100

6

PROJECT: SUSTINA - DEVIL CANYON
SUBJECT: TAILRACE TUNNEL
DATE: MARCH 27, 1984

(CONTRACT #6)

EST. #15L 03
EST. BY DEB
REV. BY L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE	810,000
A.2 PERSONNEL - SUPERVISORY	909,500
A.3 PERSONNEL - ENGINEERING	1,647,000
A.4 PERSONNEL - OFFICE	378,000
A.5 PERSONNEL - PURCHASING	81,000
A.6 PERSONNEL - WAREHOUSING	324,000
A.7 PERSONNEL - MEDICAL SAFETY	33,600
A.8 PERSONNEL - MISCELLANEOUS	1,414,500
B. VEHICLES	1,444,800
C. TRAVEL AND ALLOWANCES	349,000
D. MISC & MAINTENANCE EXPENSES	1,358,250
E. GENERAL PLANT	1,051,000
F. INSURANCE AND TAXES	0
G. BONDS	0
GRAND TOTAL INDIRECT COSTS	9,800,650

SUBJECT: TAILRACE TUNNEL

(CONTRACT #6)

EST. BY OEB

DATE: MARCH 27, 1984

REV. BY L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 27. MO @	10000.	270,000
GENERAL SUPERINTENDENT	1.0 X 27. MO @	9000.	243,000
ASST. GENERAL SUPERINTENDENT	1.0 X 27. MO @	8500.	229,500
SECRETARY	1.0 X 27. MO @	2500.	67,500

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE

810,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - TUNNEL	2.0 X 27. MO @	0500.	459,000
SUPERINTENDENT - CARPENTER	1.0 X 15. MO @	8500.	127,500
SUPERINTENDENT - CONCRETE	1.0 X 11. MO @	8500.	93,500
MASTER MECHANIC	1.0 X 27. MO @	8500.	229,500

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY

909,500

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	2.0 X 27. MO @	6500.	351,000
COST ENGINEER	1.0 X 27. MO @	6500.	175,500
PARTY CHIEF	1.0 X 27. MO @	6500.	175,500
INSTRUMENTMAN	1.0 X 27. MO @	6000.	162,000
ROD AND CHAIN MAN	2.0 X 27. MO @	5000.	270,000
SECRETARY	1.0 X 27. MO @	3500.	94,500

SUBTOTAL - A.3 PERSONNEL - ENGINEERING

1,647,000

PROJECT: SL 4A - 22/IL 70N
SUBJECT: TAILRACE TUNNEL
DATE: MARCH 27, 1984

(CONTRACT #6)

#15 03
EST. BY DEB
REV. BY L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 27. MO @	6000.	162,000
CHIEF TIMEKEEPER	1.0 X 27. MO @	2500.	67,500
CLERKS	1.0 X 27. MO @	2500.	67,500
STENOGRAPHERS	1.0 X 27. MO @	3000.	81,000

SUBTOTAL - A.4 PERSONNEL - OFFICE 378,000

A.5 PERSONNEL - PURCHASING
BUYERS

1.0 X 27. MO @	3000.	81,000
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SUBTOTAL - A.5 PERSONNEL - PURCHASING 81,000

PROJECT: U.S. - LEVEL CLIMB
SUBJECT: TAILRACE TUNNEL
DATE: MARCH 27, 1984

(CONTRACT #6)

NO. 1062 1000
EST. BY OEB
REV. BY L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING			
WAREHOUSEMAN	2.0 X 27. MO @	6000.	324,000

SUBTOTAL -	A.6 PERSONNEL - WAREHOUSING		324,000
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A.7 PERSONNEL - MEDICAL SAFETY

FIRST AID MEN	1.2 X 7. MOS @	4000.	33,600
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SUBTOTAL -	A.7 PERSONNEL - MEDICAL SAFETY		33,600
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A.8 PERSONNEL - MISCELLANEOUS

DRIVERS - CHAUFFEURS	1.0 X 27. MOS @	2500.	67,500
MISC. CARPENTRY	1.0 X 15. MOS @	6000.	90,000
BULL GANG	5.0 X 27. MOS @	6000.	810,000
DRILL	1.0 X 16. MOS @	6000.	96,000
CRANE OPERATOR	1.0 X 27. MOS @	6500.	175,500
OILER	1.0 X 27. MOS @	6500.	175,500

SUBTOTAL -	A.8 PERSONNEL - MISCELLANEOUS		1,414,500
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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 9,800,650

7

PROJECT: SUBAREA - DEVIL CANYON
SUBJECT: POWERHOUSE/ SURGE CHAMBERS
DATE: MARCH 27, 1984

(CONTRACT #7)

EST. #15000.03
EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE	1,578,500
A.2 PERSONNEL - SUPERVISORY	1,854,000
A.3 PERSONNEL - ENGINEERING	3,302,500
A.4 PERSONNEL - OFFICE	676,500
A.5 PERSONNEL - PURCHASING	354,000
A.6 PERSONNEL - WAREHOUSING	450,000
A.7 PERSONNEL - MEDICAL SAFETY	320,000
A.8 PERSONNEL - MISCELLANEOUS	2,042,000
B. VEHICLES	1,709,000
C. TRAVEL AND ALLOWANCES	449,600
D. MISC & MAINTENANCE EXPENSES	2,166,450
E. GENERAL PLANT	1,557,000
F. INSURANCE AND TAXES	0
G. BONDS	0

GRAND TOTAL INDIRECT COSTS	16,465,550

PROJECT: SUSUMA - DEVIL CANYON
SUBJECT: POWERHOUSE/ SURGE CHAMBERS
DATE: MARCH 27, 1984

(CONTRACT #7)

EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 41. MO @	10000.	410,000
CONTRACT ADMINISTRATOR	1.0 X 41. MO @	8500.	348,500
GENERAL SUPERINTENDENT	1.0 X 41. MO @	9000.	369,000
ASST. GENERAL SUPERINTENDENT	1.0 X 41. MO @	8500.	348,500
SECRETARY	1.0 X 41. MO @	2500.	102,500

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 1,578,500

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - LABOR	1.0 X 41. MO @	8500.	348,500
SUPERINTENDENT - TUNNEL	4.0 X 21. MO @	8500.	715,000
SUPERINTENDENT - CARPENTER	1.0 X 26. MO @	8500.	221,000
SUPERINTENDENT - CONCRETE	1.0 X 26. MO @	8500.	221,000
MASTER MECHANIC	1.0 X 41. MO @	8500.	348,500

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 1,854,000

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 41. MO @	9000.	369,000
OFFICE ENGINEER	1.0 X 41. MO @	6500.	266,500
FIELD ENGINEER	2.0 X 41. MO @	6500.	535,000
COST ENGINEER	1.0 X 41. MO @	6500.	266,500
PROGRESS ENGINEER	1.0 X 41. MO @	6500.	266,500
DRAFTSMAN	2.0 X 41. MO @	4000.	328,000
PARTY CHIEF	1.0 X 41. MO @	6500.	266,500
INSTRUMENTMAN	2.0 X 41. MO @	6000.	492,000
ROD AND CHAIN MAN	2.0 X 41. MO @	5000.	410,000
SECRETARY	1.0 X 41. MO @	2500.	102,500

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 3,302,500

ROJ. SU. A - IL ON
SUBJECT: POWERHOUSE/ SURGE CHAMBERS
DATE: MARCH 27, 1984

(CONTRACT #7)

I #15L 03
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 41. MO @	6000.	246,000
CHIEF TIMEKEEPER	1.0 X 41. MO @	3000.	123,000
TIMEKEEPERS	1.0 X 41. MO @	2500.	102,500
CLERKS	1.0 X 41. MO @	2500.	102,500
STENOGRAPHERS	1.0 X 41. MO @	2500.	102,500

SUBTOTAL - A.4 PERSONNEL - OFFICE 676,500

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 30. MO @	8000.	240,000
BUYER	1.0 X 30. MO @	3000.	114,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING 354,000

PROJECT: SUSIINA - DEVIL CANYON
SUBJECT: POWERHOUSE/ SURGE CHAMBERS
DATE: MARCH 27, 1984

(CONTRACT #7)

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

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING
WAREHOUSEMAN

2.0 X 39. MO @ 6000. 456,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING

456,000

A.7 PERSONNEL - MEDICAL SAFETY

NURSES

2.0 X 40.MOS @ 4000. 320,000

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY

320,000

NOJ. - SU
SUBJECT: POWERHOUSE/ SURGE CHAMBERS
DATE: MARCH 27, 1984

(CONTRACT #7)

EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.8 MISCELLANEOUS

DRIVERS- CHAUFFERS	2.0 X 40.MOS @	2500.	200,000
MISC CARPENTRY	2.0 X 26.MOS @	6000.	312,000
BULL GANG	4.0 X 38.MOS @	6000.	910,000
DRILL	1.0 X 21.MOS @	6000.	126,000
CR OPERATORS	1.0 X 38.MOS @	6500.	247,000
OILER	1.0 X 38.MOS @	6500.	247,000

SUBTOTAL - A.8 PERSONNEL - MISCELLANEOUS 2,042,000

PROJECT: SUSUMA - DEVIL CANYON
SUBJECT: POWERHOUSE / SURGE CHAMBERS
DATE: MARCH 27, 1984

(CONTRACT #7)

NO. #1563A103
EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	10.0 X 12. MOS @	600.	72,000
AUTOS	1.0 X 3. MOS @	600.	1,800
PICK UPS	10.0 X 27. MOS @	600.	162,000
PICK UPS	1.0 X 2. MOS @	600.	1,200
SERVICE TRUCKS	1.0 X 41. MOS @	800.	32,800
HYD. CR.	2.0 X 30. MOS @	15000.	900,000
BUS	2.0 X 32. MOS @	7800.	499,200
GRADERS	1.0 X 4. MOS @	10000.	40,000

SUBTOTAL - B. VEHICLES 1,709,000

C. TRAVEL AND ALLOWANCES

* OF CONTRACTS = 41/18 = 2.3

TRAVEL TO JOB			
MARRIED	14.0 X 1. TRP @	3000.	42,000
SINGLE	8.0 X 1. TRP @	2000.	16,000
SHIPMENT OF PERSONAL GOODS			
MARRIED	14. EA @	15000.	210,000
SINGLE	8. EA @	8000.	64,000
TRAVEL EXPENSE-JOB CONNECTED			
LOCAL TRAVEL	41. MOS @	600.	24,600
VACATION TRAVEL			
MARRIED			
SINGLE			
SUBSISTENCE - MEN	22.0 X 1. MOS @	1500.	33,000
TURN OVER FACTOR (10 X)	2. MEN @	30000.	60,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 449,600

PROJECT: SUSANA - UTIL CONJN
SUBJECT: POWERHOUSE/ SURGE CHAMBERS
DATE: MARCH 27, 1984

(CONTRACT #7)

NO. #156,000.33
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES&MAINTENANCE

OFFICE SUPPLIES	41. MOS @	250.	10,250
OFFICE RENT	41. MOS @	1200.	49,200
OFFICE EQUIPMENT	41. MOS @	1500.	61,500
ENGINEERING SUPPLIES	41. MOS @	500.	20,500
ENGINEERING EQUIPMENT-RENTAL	41. MOS @	1500.	61,500
PHOTOS AND REPRODUCTIONS	41. MOS @	500.	20,500
OUTSIDE ENGINEERING EXPENSE	1. LS	100000.	100,000
CONSULTING EXPENSE	1. LS	100000.	100,000
WAREHOUSE & PURCHASE AIR	41. MOS @	6000.	246,000
SAFETY & FIRST AID SUPPLIES	41. MOS @	4000.	164,000
BUILDING MAINTENANCE	41. MOS @	3000.	123,000
TELEPHONE & TELEX	41. MOS @	4500.	184,500
JANITORIAL SERVICES	41. MOS @	5000.	205,000
SANITARY FACILITIES CHEM TOIL	41. MOS @	1500.	61,500
DRINKING WATER AND ICE	41. MOS @	1000.	41,000
RADIO COMMUNICATIONS	41. MOS @	2500.	102,500
LEGAL EXPENSE	1. LS	50000.	50,000
AUDIT	1. LS	50000.	50,000
HOME OFFICE TRAVEL-TO JOBSITE	36. TRP @	4000.	120,000
ENTERTAINMENT, DONA & CONTRIB.	41. MOS @	1000.	41,000
DUES, FEES, ADVERTISING & SUBS.	41. MOS @	100.	4,100
TEST MATERIALS	1. LS	10000.	10,000
FIRE PROTECTION	1. LS	15000.	15,000
PERMITS	1. LS	5000.	5,000
POSTAGE	41. MOS @	100.	4,100
MISC. JOB ROAD/YARDS MAINT.	1. LS	40000.	40,000
HEAT	41. EA.	1500.	61,500
POWER (CTF & SHOP)	41. EA	2000.	114,000
COMPUTER	1. LS	100000.	100,000

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES

2,166,450

SUBJECT: POWERHOUSE/ SURGE CHAMBERS
DATE: MARCH 27, 1984

(CONTRACT #7)

EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

E. GENERAL PLANT

OFFICES	70. \$/SF	3400.	230,000
WAREHOUSE	50. \$/SF	3400.	170,000
GENERAL YARD AND SITE GRADING	5. \$/SF	80000.	400,000
HOSPITAL OR FIRST AID TRAILER	70. \$/SF	200.	14,000
INSP FIELD OFFICE	50. \$/SF	300.	15,000
CONCRETE TESTING FACILITIES	60. \$/SF	400.	24,000
FIELD OFFICE	60. \$/SF	400.	24,000
WORKMENS SHELTERS	50. \$/SF	3000.	150,000
TOOL SHEDS	40. \$/SF	300.	12,000
POWDER HOUSE	1. LS	10000.	10,000
CAP HOUSE	1. LS	3000.	3,000
CARPENTERS SHOP	40. \$/SF	2400.	96,000
ELEC RPR	50. \$/SF	300.	15,000
FUEL STORAGE	1. LS	6000.	6,000
SERVICE STR	1. LS	30000.	30,000
MECHANIC SHOP	50. \$/SF	3000.	150,000
SHOP TOOLS	1. LS	30000.	30,000
MISC CARPENTRY	1. LS	30000.	30,000
LIGHT & POWER-INSTALL REMOVE	250. KW @	400.	100,000
TELEPHONE SYSTEM-INSTALL & REM	1. LS	10000.	10,000
RADIO SYSTEM- " " "	1. LS	30000.	30,000

SUBTOTAL - E. GENERAL PLANT

1,557,000

100 JE 100S 100C 100M 100N 100P 100Q 100R 100S 100T 100U 100V 100W 100X 100Y 100Z
SUBJECT: POWERHOUSE/ SURGE CHAMBERS
DATE: MARCH 27, 1984

(CONTRACT #7)

N 156 3
EST. 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

16,465,550

PRE 1: S INH TAN
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 28, 1984

EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

B. AIRPORT SERVICE	2,565,000
C. POWDER HOUSE	0
D. CAP HOUSE	0
E. CONSTRUCTION LIGHTING	4,141,000
F. SNOW REMOVAL	3,570,000
G. FUEL STORAGE & DISPATCHING	0
H. HAUL ROADS	17,600,000

GRAND TOTAL INDIRECT COSTS	27,876,000

PROJECT: SUSITNA - WATANA
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 28, 1984

NO. #1563A103
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. AIRPORT SERVICE

DURING THE SUMMER MONTHS
2-6 SEATER AIRCRAFT WILL BE
PROVIDED FOR 7 MOS/YEAR
FOR 5 YEARS. DURING THE
WINTER MONTHS (5 MOS/YR) ONE
AIRCRAFT WILL BE PROVIDED FOR
4 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 5 = 2450

\$/PLANE = 2450 X 150:

2. PL @ 367500. 735,000

B) WINTER

HRS = 70 X 5 X 4 = 1400

\$/PLANE = 1400 X 150.

1. PL @ 210000. 210,000

TWO PILOTS IN DAY TIME
ONLY.

A) SUMMER

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

2.0 X 5. YRS @ 91000. 910,000

B) WINTER

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

1.0 X 4. YRS @ 65000. 260,000

SERVICE CREW (3 CLERKS)

\$ 2500/MO X 12 MOS

3.0 X 5. YRS @ 30000. 450,000

SUBTOTAL - B. AIRPORT SERVICE 2,565,000

PROJECT: SU...IA - ...ANA
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 28, 1984

... #15...03
EST. BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

C. POWDER HOUSE

SUBTOTAL - C. POWDER HOUSE 0

D. CAP HOUSE

SUBTOTAL - D. CAP HOUSE 0

SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
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HARZA ENGINEERING COMPANY
INDIRECT COSTS

EST. BY DEB
REV. L LEVY

E. CONSTRUCTION LIGHTING

THE CONSTRUCTION AREA IS
APPROXIMATELY

SF = 7,500,000

LIGHTING REQUIREMENTS

(PARKING LOT

- DOWNTOWN AREA)

0.40 WATTS/SF

REQD KW = 3000

AT \$ 0.135 /KW-HR

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

= 4550

\$/HR = 3000 X .135 = 405

TOTAL COST

\$ = 405 \$/HR X 4550 HRS

1. LS 1842750. 1,843,000

LIGHTING MAINTENANCE

CREW (3 MEN)

3.0 X 35. \$/HR 12740. 1,338,000

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

1- SADDLE DAM

2- QUARRY

2- ARCH DAM

2- SPILLWAY

1- GRAVEL PIT

8- STADIUM LIGHTS

8. LGT @ 120000. 960,000

SUBTOTAL - E. CONSTRUCTION LIGHTING 4,141,000

ROVE 50% 4-1-1984
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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 5
= 3000 HRS

8.0 X 35. \$/HR 3000. 840,000

EQUIPMENT:

CATS

4.0 X 5. YR @ 69000. 1,380,000

MOTOR PATROL

4.0 X 5. YR @ 30000. 600,000

MATERIAL:

SALT:

TONS = 50 X 15 X 5 X 5
= 18750.

40. \$/TON 18750. 750,000

SUBTOTAL - F. SNOW REMOVAL 3,570,000

3. FUEL STORAGE & DISPATCHING

SUBTOTAL - G. FUEL STORAGE & DISPATCHING

0

500

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HARZA ENGINEERING COMPANY
INDIRECT COSTS

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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

8. MI @ 2200000. 17,600,000

SUBTOTAL - H. HAUL ROADS

17,600,000

GRAND TOTAL - INDIRECT COSTS

27,876,000 ✓