

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 1

August, 1984

ALASKA POWER AUTHORITY

SUSITNA HYDROELECTRIC PROJECT
EXPLANATION OF AUGUST 1984 REVISED COST ESTIMATE

The Alaska Power Authority (Power Authority) has developed this revised Feasibility Level Estimate for the Susitna Project which updates the 1982 cost estimate prepared by Acres American Inc., and given to the Federal Energy Regulatory Commission (FERC) in support of the Susitna License Application. This updated cost study also reflects the effect of certain design refinements to the License Application which the Power Authority filed to implement on August 14, 1984. As part of this design refinement filing, the Power Authority provided FERC with revised Exhibit D cost tables. These revised cost tables were prepared on the basis of the Power Authority's updated Feasibility Level Estimate. In order to assist the FERC in analyzing the design refinement filing, which included the revised Exhibit D cost materials, the Power Authority is furnishing this updated Feasibility Level Estimate study to FERC as additional supplemental information.

For ease of evaluation, the revised Exhibit D cost tables are included in this document. The revised tables are listed below:

Revised Table D.1	Summary of Cost Estimate (August 1984)
Revised Table D.2	Estimate Summary - Watana (August 1984)
Revised Table D.3	Estimate Summary - Devil Canyon (August 1984)
Revised Table D.4	Mitigation Measures - Summary of Costs Incorporated in Construction Costs Estimate (August 1984)
Revised Table D.7	Watana and Devil Canyon Cumulative and Annual Cash Flow (August 1984)

The revised estimates of costs presented in the above tables are made with the same line number account codes, the same general approach to cost estimating, construction methods, and indirect construction costs as were made in the License Application. The quantity of rockfill and other material to be utilized upon which the current estimates are based reflect the design refinements proposed by the Applicant in August 1984. The engineering and administration costs have been revised upward based on the Applicant's experience to date and anticipated costs related to engineering, and administration (including environmental studies) to be incurred prior to the present scheduled issuance of the FERC License. In addition, the cost study reflects the cost-reducing effect of the Power Authority's proposed use of a deep cut off through the relict channel,

as shown in its filing of August 14, 1984, in lieu of the License Application approach.

The following discussion of the cost estimates is offered as background. The project cost estimate which was included in Exhibit D of the License Application was made by Acres American, Inc. In January 1984 Harza-Ebasco was directed by the Power Authority to develop a new comprehensive cost estimate based upon those design refinements which were of significant benefit to the project.

As a part of this estimating effort, Harza-Ebasco made the decision to accumulate costs against a different set of construction pay items than was used by Acres American. The estimating technique used by Acres was based upon approximately 800 pay items while Harza-Ebasco consolidated items and used approximately 170. This consolidating consisted of, for example, combining tunnel excavation and tunnel support into a unit price per lineal foot, combining concrete, reinforcing steel, overbreak concrete, foundation preparation and miscellaneous related items into a single price per cubic yard of concrete in tunnels, combining many categories of excavation into one, etc. The reduced number of pay items do not significantly influence the resulting estimated cost, but direct comparability of any specific feature is impeded by the use of different pay items.

GENERAL COST ESTIMATING APPROACH

The construction cost of the Susitna Project Watana Development was estimated in detail based upon a 6 unit underground powerhouse, normal maximum reservoir at El. 2185 and spillway and outenances.

After a review of the backup calculations, estimating procedures and basic criteria used in the Feasibility Estimate by Acres American, Inc., it was concluded that, in order to reduce the total effort, it should not be necessary to reanalyze in detail the following work items:

- Land and Land Rights
- Road, Rail facilities and Airstrip
- Clearing and Grubbing, Dewatering, Drilling and Grouting and Slurry Walls
- Miscellaneous Metals, Architectural, Gates and Hoists
- Mitigation

The changes in the transmission plant account costs which would result from the use of an SF6 switchyard in place of the open air switchyard, as proposed in the design refinement filing of the Power Authority, were checked and found to require only minor changes and were therefore not revised herein.

BASIC ESTIMATING CRITERIA

The construction costs were estimated based on the following criteria:

- (a) Type of Estimate - The estimate will be used at the

feasibility level for the FERC License Application.

- (b) Price Level - All costs were estimated at January 1982 price levels.
- (c) Working Season - It was assumed that earthmoving and outside concrete activities will be performed on a 7 month season basis. Underground work would be performed on a year round schedule.
- (d) Labor - The rates represent January 1982 dollars and are based on two 10 hour shifts, 6 days per/week operation. The rates include the following allowances to the base:

Overtime	17.0%
Two Shifts	3.0%
Burden:	
Workman's Compensation	9.60%
State Unemployment	4.45%
Federal Unemployment	0.70%
Liability Insurance	2.00%
Social Security Insurance	6.70%
Holiday Pay	1.60%
Travel Allowance	<u>1.60%</u>
	26.65% 27.0%

The overtime and shift allowance of 20% is a percentage mark-up to the base rate. That product is then multiplied by the Labor Burden of 27.0% and that is the

figure to which the fringe benefits are added resulting in an adjusted hourly rate:

$$\text{Adjusted Hourly Rate} = (\text{Base Rate} \times 1.20 \times 1.27) + \text{Fringes}$$

- (e) Equipment - The equipment hourly rates used in the cost estimate are based on the "Cost Reference Guide for Construction Equipment" for January 1982 adjusted as follows:

Depreciation	x 1.10
Maintenance & Labor	x 2.50
Parts	x 1.25
G.E.C.	x 1.25
Fuel	x 1.27
Lube	x 1.27
Electricity	x 1.00

- (f) Materials, Supplies and Small Tools - The cost of the materials and supplies was based on January 1982 levels and represent prices delivered to the jobsite warehouses. The cost of material control and warehousing is in the indirect costs. The cost of handling and installing is in the direct costs. The cost of small tools was assumed at 5-10% of labor costs and is included in the direct costs.

- (g) Indirect Costs - These costs include the following:
- i) Personnel: All administrative and unassigned personnel such as: Project Managers, General

Superintendents, Shift Superintendents, Master Mechanics, Engineers, Engineering, Office, Warehousing and Equipment Crew.

- ii) Travel Allowances: Mobilization of contractor's staff personnel, vacation travel, and allowance for turn-over travel costs.
- iii) Vehicles: Vehicles assigned to administrative personnel, and other equipment not accounted for in the direct costs such as ambulances, airplanes, flat-bed trucks, buses, service trucks, forklifts, etc.
- iv) Miscellaneous and Maintenance Expense: Expenses such as the cost of office, photo, reproduction supplies, outside engineering, legal, auditing consultants, communication, utilities, testing and computer services, building maintenance, warehousing and air freight on purchases.
- v) General Plant and Services: Cost of construction plant such as: offices, warehouses, shops, installation of light and power, telephone, radio, and utility systems. It also includes general services such as: ambulance, air transport, explosive storage and distribution, construction lighting, snow removal and fuel storage and dispatching, truck steam house, etc.

- vi) Bonds, Insurances and Taxes: The cost estimate does not include the cost of bonds, insurance and taxes.
- vii) Financing: The cost of contractor's financing was estimated as follows:
- Cash Penetration - 30 days at 15% per year, for 85% of monthly certification
 - Holdback - financing retention of 10% up to 50% of work completed plus 1 year maintenance, at interest rate of 15% per year.
- viii) Mobilization and Demobilization: The cost of mobilizing all construction equipment is included in the indirect costs. The cost of mobilizing all construction plants such as material processing, clay drying, concrete batch and mix is included in the direct cost items. The cost of demobilizing is assumed to "wipe-out" salvage value.
- ix) Contractor's Profit and Home Office Support:
Contractor's profit and home office support was estimated at 10% of the contract amount. Home office support will include administrative personnel recruiting, and Lower 48 expediting and marshalling expenses.

MATERIAL SOURCES - WATANA DAM

The cost estimate was prepared based on obtaining the materials for embankments and concrete as follows:

a) Sand and Gravel Fills:

- Alluvium Deposits Borrow Area E located approximately 2 miles downstream on left bank	29,426,800 BCY
- Required Excavations	<u>4,244,200</u>
	33,671,000 BCY

b) Rockfill:

- Quarry on right Abutment Extension of Spillway	14,618,900 BCY
- Required Excavations:	
° Directly	3,090,600
° Rehandled from Stockpile	<u>1,816,500</u>
	19,526,000 BCY

c) Impervious Fill:

- Deposit Borrow D, located approximately 2 miles upstream, right bank	9,540,000 BCY
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d) Concrete Aggregates:

- Alluvium Deposits Borrow E	651,000 BCY
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SUMMARY OF RESULTING COST DIFFERENCES FROM LICENSE

APPLICATION IN FEASIBILITY ESTIMATE

- a. The change in Susitna construction costs due to Watana design refinements shown in the Power Authority's

filing of August, 1984 and the Devil Canyon design refinement is estimated to be as follows:

Watana

<u>Refinement No.</u>	<u>Description</u>	<u>Millions of Dollars</u>
1	Reduce embankment rock/over-burden excavation in foundation	100.1 Decrease
2	Revise dam and cofferdam internal zoning	37.5 Decrease
3	Revise vertical setting and size of diversion tunnels and cofferdam heights	32.9 Decrease
4	Transformer gallery, powerhouse, surge chamber caverns relocated and reoriented	11.1 Decrease
5	Arrangement of power conduits and intake revised	20.0 Decrease
6	Service spillway enlarged and emergency fuse plug spillway eliminated	106.6 Decrease
7	Power intake and spillway approach channel revised	24.5 Decrease
8	Reduce construction facilities in accordance with design refinements	43.5 Decrease
9	Increase turbine-generator rotation speed from 225 to 257.1 rpm	5.1 Decrease
10	Change to SF6 gas-insulated switchgear and bus from oil-filled leads and outdoor switchyard	*
11	Spillway chute drainage by open-cut trench instead of tunnel.	**
Total Decrease		361.2 Decrease

* Minor cost effect
** Included in Refinement No. 6 b.

- b. Project costs are reduced an additional 65.9 million dollars as a result of the agreement to use a deep cutoff through the relict channel in lieu of the License Application approach.
- c. There is an additional cost decrease attributable to estimating differences between the License Application estimate made by Acres American, Inc. and the new August 1984 estimate. This decrease amounts to 43.7 million dollars, which is less than 1 percent of the total estimate.
- d. The project cost estimate has been increased by the addition of certain prelicensing costs. These include the costs to be incurred for Engineering, Administration and Environmental Studies prior to issuance of the License estimated to be 151.0 million dollars. These costs were not included in the License Application Estimate.

The above cost history can be summarized as follows:

	<u>Millions of Dollars</u>
Original estimate in the License Application	5149.8
Less design refinements decreases	361.2
Less relict channel treatment decrease	65.9
Less decrease caused by different estimating approach	43.7
Plus pre-license costs	<u>151.0</u>
New August 1984 estimate	4830.0

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BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION
APPLICATION FOR LICENSE FOR
MAJOR PROJECT

SUSITNA HYDROELECTRIC PROJECT

(Project No. 7114-000)

Revised
Exhibit D
Tables
August, 1984

EXHIBIT D

SUMMARY OF COST ESTIMATE

(Prepared by Harza-Ebasco - August 1984)

ALL COSTS ARE AT JANUARY 1982 PRICE LEVEL

AND TRANSMISSION PLANT COSTS ARE AS ESTIMATED BY ACRES

REVISED TABLE D.1: SUMMARY OF COST ESTIMATE

JANUARY 1982 DOLLARS \$ X 10⁶

CATEGORY	WATANA	DEVIL CANYON	TOTAL
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

REVISED TABLE D.2: ESTIMATE SUMMARY - WATANAJANUARY 1982 PRICE LEVEL

<u>Line Number</u>	<u>Description</u>	<u>Amount (x 10⁶)</u>	<u>Totals (x 10⁶)</u>	<u>Remarks</u>
330	Land & Land Rights.....	\$ 51		
331	Powerplant Structures & Improvements..	70		
332	Reservoir, Dams & Waterways.....	1,351		
333	Waterwheels, Turbines & Generators....	71		
334	Accessory Electrical Equipment.....	21		
335	Miscellaneous Powerplant Equipment (Mechanical)	14		
336	Roads & Railroads.....	214		
	Subtotal.....	\$1,792		
	Contingency.....	<u>261</u>		
	TOTAL PRODUCTION PLANT.....	\$2,053		

REVISED TABLE D.2 (Cont'd)

<u>Line Number</u>	<u>Description</u>	<u>Amount (x 10⁶)</u>	<u>Totals (x 10⁶)</u>	<u>Remarks</u>
	<u>TOTAL BROUGHT FORWARD</u>		\$ 2,053	
	<u>TRANSMISION PLANT</u>			
350	Land & Land Right	\$ 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	—		
	<u>Subtotal</u>	\$ 395		
	Contingency	<u>61</u>		
	<u>TOTAL TRANSMISSION PLANT</u>	\$ 456		
			\$ 2,509	

REVISED TABLE D.2 (Cont'd)

<u>Line Number</u>	<u>Description</u>	<u>Amount (x 10⁶)</u>	<u>Totals (x 10⁶)</u>	<u>Remarks</u>
	<u>TOTAL BROUGHT FORWARD</u>		<u>\$ 2,509</u>	
	<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	-		Included under 399
393	Stores Equipment	-		Included under 399
394	Tools Shop & Garage Equipment	-		Included under 399
395	Laboratory Equipment	-		Included under 399
396	Power-Operated Equipment	-		Included under 399
397	Communications Equipment	-		Included under 399
398	Miscellaneous Equipment	-		Included under 399
399	Other Tangible Property	<u>5</u>		Included under 399
	Subtotal	\$ 5		
	Contingency	<u>1</u>		
	TOTAL GENERAL PLANT		<u>\$ 6</u>	
			<u>\$ 2,515</u>	

REVISED TABLE D.2 (Cont'd)

<u>Line Number</u>	<u>Description</u>	<u>Amount ($\times 10^6$)</u>	<u>Totals ($\times 10^6$)</u>	<u>Remarks</u>
	<u>TOTAL BROUGHT FORWARD</u>		<u>\$ 2,515</u>	
	<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.			
	<u>Subtotal</u>	<u>\$ 331</u>		
	<u>Contingency</u>	<u>48</u>		
	<u>TOTAL INDIRECT COSTS</u>	<u>\$ 379</u>		
			<u>\$ 2,894</u>	

REVISED TABLE D.2 (Cont'd)

<u>Line Number</u>	<u>Description</u>	<u>Amount (x 10⁶)</u>	<u>Totals (x 10⁶)</u>	<u>Remarks</u>
<u>TOTAL BROUGHT FORWARD</u>			\$ 2,894	
<u>OVERHEAD CONSTRUCTION COSTS (PROJECT INDIRECTS)</u>				
71	Engineering/Administration and Environmental 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	
<u>TOTAL PROJECT COSTS - January 1982 Price Level.</u>			\$ 3,361	

REVISED TABLE D.3: ESTIMATE SUMMARY - DEVIL CANYON

JANUARY 1982 PRICE LEVEL

<u>Line Number</u>	<u>Description</u>	<u>Amount (x 10⁶)</u>	<u>Totals (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>116</u>		
	Subtotal	\$ 858		
	Contingency	<u>125</u>		
	<u>TOTAL PRODUCTION PLANT</u>		\$ 983	

REVISED TABLE D.3 (Cont'd)

<u>Line Number</u>	<u>Description</u>	<u>Amount (x 10⁶)</u>	<u>Total (x 10⁶)</u>	<u>Remarks</u>
	TOTAL BROUGHT FORWARD		\$ 983	
	TRANSMISSION PLANT			
350	Land & Land Rights	\$ 0		Included in Watana Estimate
352	Substation & Switching Station Structures & Improvements	7		
353	Substation & Switching Station Equipment	21		
354	Steel Towers & Fixtures	29		
356	Overhead Conductors & Devices	34		Included in Watana Estimate
359	Roads & Trails	0		
	Subtotal	\$ 91		
	Contingency	14		
	TOTAL TRANSMISSION PLANT		\$ 105	
			\$ 1,088	

REVISED TABLE D.3 (Cont'd)

<u>Line Number</u>	<u>Description</u>	<u>Amount (x 10⁶)</u>	<u>Totals (x 10⁶)</u>	<u>Remarks</u>
	<u>TOTAL BROUGHT FORWARD</u>		\$ 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	-		Included under 399
393	Stores Equipment	-		Included under 399
394	Tools Shop & Garage Equipment	-		Included under 399
395	Laboratory Equipment	-		Included under 399
396	Power-Operated Equipment	-		Included under 399
397	Communications Equipment	-		Included under 399
398	Miscellaneous Equipment	-		Included under 399
399	Other Tangible Property	<u>5</u>		
	Subtotal	\$ 5		
	Contingency	<u>1</u>		
	<u>TOTAL GENERAL PLANT</u>		\$ 6	
			\$ 1,094	

REVISED TABLE D.3 (CONT'D)

<u>Line Number</u>	<u>Description</u>	<u>Amount (x 10⁶)</u>	<u>Totals (x 10⁶)</u>	<u>Remarks</u>
	TOTAL BROUGHT FORWARD		\$ 1,094	
	INDIRECT COSTS			
61	Temporary Construction Facilities	\$ _		See Note
62	Construction Equipment	-		See Note
63	Camp & Commissionary	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	

REVISED TABLE D.3 (Cont'd)

<u>Line Number</u>	<u>Description</u>	<u>Amount (x 10⁶)</u>	<u>Totals (x 10⁶)</u>	<u>Remarks</u>
	TOTAL CONSTRUCTION COSTS BROUGHT FORWARD		\$ 1,265	
OVERHEAD CONSTRUCTION COSTS (PROJECT INDIRECTS)				
71	Engineering/Administration and Environmental 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		<u>\$ 204</u>	
	TOTAL PROJECT COSTS - January 1982 Price Level.		\$ 1,469	

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

IN CONSTRUCTION COSTS ESTIMATES

JANUARY 1982 PRICE LEVEL

<u>COSTS INCOPORATED IN CONSTRUCTION ESTIMATES</u>	<u>WATANA \$ x 10³</u>	<u>DEVIL CANYON \$ x 10³</u>	<u>Remarks</u>
	<u>JANUARY 1982 PRICE LEVEL</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	21,200	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

REVISED TABLE D.7 SUSITNA HYDROELECTRIC PROJECT

WATANA & DEVIL CANYON CUMMULATIVE AND ANNUAL CASH PLAN
January 1982 Dollars - in Millions

Year To	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.

WATANA

PRICE REPORT

OUT

WATANA - FERC APPLICATION

FEASIBILITY LEVEL

SUMMARY OF COST ESTIMATE

FILE # 1563-103

(L LEVY, RAM D, OEB)

JULY 10, 1984

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	14,129,812
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 (60) 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

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
(OED/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
A	SCHEME 21050 (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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DATE JULY 9, 1984
 FILE NO 1563-103
 PROJECT WATAN - FERC APPLICATION

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	1,037,865
.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'X20' EXC	2970 LF		3140.95	9,328,621

SUBTOTAL, PAGE 2 47,641,497

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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
.121	21'H X 25' W.H.S. SURGE CH. ACCESS	180	LF	2885.56	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	21.80	1,565,022
.12C	VENTILATION GALLERY 14' H X 12' W H.S.	560	LF	1323.65	741,244
.124	PORTALS CONCRETE	600	CY	426.60	256,000
.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	97968.90	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	2,718,408
.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		927958.90	927,958
.14	FIRE PROTECTION				
	HEADTANK	1 LS		470900.50	470,900
.15	DUS TUNNELS				
.151	EXC HORIZONTAL 22X22	156 LF		2874.66	440,447
.152	EXC INCLINED 16X16	202 LF		2385.69	672,765
.154	DUS TUNNEL SLAD CONC	350 CY		317.68	111,188
.16	TRANSFORMER GALLERY				
.161	EXCAVATION	26200 CY		85.21	2,232,502

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

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
164	CONCRETE SLAB	2180	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
180	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				5,903,065	
SUBTOTAL - ACCOUNT 331 POWERHOUSE				69,450,041	

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HARZA EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(GEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
332	RESERVOIRS, DAMS AND WATERWAYS				
.1	RESERVOIR CLEARING	37500	ACRES	1281.60	48,060,187
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	25,342,308
.21A	DIVERSION TUNNEL EXCAVATION 40 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	1,878,670
.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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PROJECT WATKIN - FERC APPLICATION

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		3261.10	2,493,636
.215	PORTAL CONCRETE	18525 CY		266.29	4,933,022
.2150	MASS CONCRETE	200 CY		240.30	48,060
.216	FLIP DUCKET 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	144,383
.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					30,026,488

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

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
21H	GRANULAR BACKFILL	8245	CY	13.25	109,246
SUBTOTAL, PAGE 9					109,246
SUBTOTAL - ACCOUNT 332.2 DIVERSION TUNNELS					97,348.501

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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
.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
.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	522,505
.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

UBTOTAL, PAGE 12

740,902,004

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

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.31H	ROCKFILL DIRECTLY FROM EXCAVATION	3924600	CY	0.78	3,061,188
.3H1	RAKING ROCKFILL	982000	CY	0.75	736,500
.313	DRILL&GROUT - CONSOL.	345000	LF	28.03	9,670,350
.31I	DRILL&GROUT - CURTAIN	283450	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
.32A	PORTALS - COMMON EXC	3600	CY	4.25	15,300

SUBTOTAL, PAGE 13

56,532,550

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

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.328	PORTALS - ROCK EXC	1000	CY	18.84	18,840
.324	TUNNEL CONCRETE SLABS	3410	CY	317.60	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	29073.68	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
4	RELECT CHANNEL	1	LS	58613000.00	58,613,000
SUBTOTAL, PAGE 15				58,613,000	
SUBTOTAL - ACCOUNT 332.4 RELECT CHANNEL				58,613,000	

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MARZA-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	5,086,333
.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	L.S.	16218650.00	16,218,650
SUBTOTAL, PAGE 17				16,218,650	
SUBTOTAL - 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

SUDTOTAL, PAGE 10 60,009,432

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(DEB/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	OGEES	24800	CY	248.30	5,959,440
.52L	FLIP BUCKET & OUTLET DISCHARGE STRUCTURE	28300	CY	336.43	9,520,969
.52M	DRAIN GALLERY 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
.528	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
(DEB/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.6	POWER AND OUTLET INTAKE&APPROACH				
.611	CUMON 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		22.70	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	5000 LF		23.36	135,480

SUDTOTAL, 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	590816.00	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 SHFT EXC 8.5 DIA	535	LF	2000.83	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	587.00	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	PENSTOCKS				
.811	EXC -SHAFT - 27'DIA	1800	LF	4544.02	8,179,236
SUBTOTAL, PAGE 23				23,525,708	

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

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
.81A	EXC -HORIZ- 27' DIA	1245 LF		2921.38	3,637,116
.812	EXC - HORIZ - 21'DIA	690 LF		2089.81	1,441,972
.81B	EXC - HORIZ - 18'DIA	1200 LF		1756.57	2,107,878
.813	DRILL & GROUT-CONSOL	1 LS		357121.50	357,122
.814	PENSTOCK CONCRETE LINER-SHAFT-24'	1800 LF		5146.67	9,264,006
.81B	CONCRETE LINER LINER-HORIZ 24' ID	1245 LF		3036.61	3,780,586
.81C	CONCRETE LINER HORIZ 18' ID	690 LF		1952.70	1,347,415
.815	CONCRETE LINER HORIZONTAL - 15' ID	1200 LF		1627.31	1,952,778
.81B	STEEL LINER	1820 TON		3893.10	7,085,433
<hr/>					
SUBTOTAL, PAGE 24				30,974,300	
<hr/>					
SUBTOTAL - ACCOUNT 332.8 PENSTOCKS & SURGE CHAMBER 54,500,016					

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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
.9	TAILRACE				
.911	TUNNEL EXC. - 37'	2000 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, TURDINE & 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
34	ACCESSORY ELECTRICAL EQUIPMENT	1	LS	21200000.00	21,200,000
SUBTOTAL, PAGE 27				21,200,000	
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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PROJECT WATANA - FERC APPLICATION

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	20 MI		4971000.00	97,420,000
.13	PERMANENT ROADS	6 MILES		504000.00	3,024,000
.2	RAIL FACILITIES	1 LS		45401000.00	45,401,000
.3	AIRSTRIP	1 LS		7010900.00	7,010,000
SUBTOTAL, PAGE 29					213,864,000
SUBTOTAL - ACCOUNT 336 ROADS, RAIL FACILITIES					213,864,000

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 PRICE	TOTAL PRICE
350-359	TRANSMISSION PLANT (DIVIDED INTO 10 UNITS FOR PROGRAM CONVENIENCE)	10	LS	39555000.00	395,550,000
SUBTOTAL, PAGE 30				395,550,000	
SUBTOTAL - ACCOUNT 350-359 TRANSMISSION LINES				395,550,000	

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 PRICE	TOTAL PRICE
399	GENERAL PLANT	1	LS	5092000.00	5,092,000
SUBTOTAL, PAGE 31				5,092,000	
SUBTOTAL - ACCOUNT 399 GENERAL PLANT				5,092,000	

DATE JULY 9, 1984
FILE NO 1563-163
PROJECT WATANA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(OEB/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 SYSTL 1 1 LS 2025000.00 2,025,000

.72 CAMP POWER 88000 MH 140.00 12,320,000

.73 CONSTRUCTION POWER 68000 .MH 140.00 9,520,000

.8 CONSTRUCTION HEATING
& VENTILATING

.81 PLANT 1 LS 1160000.00 1,160,000

SUBTOTAL, PAGE 32 294,588,033

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

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(DEB/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

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

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

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
58)	MITIGATION	1	LS	29200000.00	29,200,000
JBTOTAL, PAGE 34				29,200,000	
SUBTOTAL - ACCOUNT (68) MITIGATION				29,200,000	
GRAND TOTALS				2,522,322,775	

MARK UP FACTORS

TYPE: MARK UP DERIVATION
DATE: JULY 9, 1984

EST. BY RAM D/
& REV. DEB/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

(3) - (4)

MARK UP FACTOR = -----

(2) - (4)

2,522,592,859 - 1,102,339,033

2,014,372,859 - 1,102,339,033

1,420,253,826

----- * 1.55723

912,033,826

- 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 LEV^V,RAM D,OEB)

SUMMARY OF DIRECT COST ESTIMATE

JULY 10, 1984

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	11,784,370
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.	70,000,000
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

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

DATE JULY 9, 1984
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PROJECT WATANA - FERC APPLICATION

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	240.00	10,831,500
.117	DRAIN HOLES	44430	LF	15.00	666,450
.118	METALWORK	1	LS	1818235.00	1,818,235
.119	ARCHITECTURAL	1	LS	736508.00	736,500
.11C	MECHANICAL	1	LS	1132400.00	1,132,400
.12	ACCS. TUNLS&PORTALS				
.120	35'X20' 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	100 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	123,024

SUBTOTAL, PAGE 3

4,120,188

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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 ID	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	207,976
.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

DATE JULY 9, 1984

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PROJECT WATANA - FERC APPLICATION

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

ITEM	DESCRIPTION	QUANTITY UNIT	UNIT COST	TOTAL COST
.164	CONCRETE SLAB	2100 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	20700.00	20,700
.180	MANHOIST	1 EA	131471.00	131,471
.18	CARE OF WATER	1 LS	334110.00	334,110
.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
	SUBTOTAL, PAGE 6				30,862,500
	SUBTOTAL - ACCOUNT 332.1 RESERVOIR DAMS & TUNN.				30,862,500

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PROJECT WATANA - FERC APPLICATION

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	16,273,000
.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 30,023,970

DATE JULY 9, 1984
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PROJECT WATAHA - FERC APPLICATION

HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(DEB/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 DUCKET CONCRETE	2000 CY		170.79	341,580
.217	EMERGENCY RELEASE CHAMBER CONCRETE	15300 CY		250.00	3,825,000
.210	SUSPENDED METAL ROOF- EMERG. RELEASE CHMU	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		13,573,000.00	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					62,513,283

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PROJECT WATANNA - FERC APPLICATION

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		7.16	369,200
.223	ROCK & GRAVEL FILL	313000 CY		8.51	2,663,630
.224	FILTERS	33000 CY		8.51	280,830
.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					11,784,370
SUBTOTAL - ACCOUNT 332.22 U/S COFFERDAM					11,784,370

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HARZA-EBASCO JOINT VENTURE
FEASIBILITY ESTIMATE
(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	IMPERVIOUS FILL	47250 CY		7.10	335,475
.233	ROCK & GRAVEL FILL	42800 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
(OED/RAM D)

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.3	MAIN DAM				
.311	EXCAVATION - COMMON	4936000 CY		3.58	17,670,800
.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	1000000 CY		0.51	175,527,260
.31E	FILTERS	6330000 CY		0.51	53,936,300
.31F	ROCKFILL FROM QUARRY	1000000 CY		7.26	134,770,204
.31G	ROCKFILL FROM STOCKPILE	2307000 CY		3.04	7,013,200

SUBTOTAL, PAGE 12

475,62,144

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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
.31I	DRILL&GROUT - CURTAIN	283450	LF	20.03	5,669,000
.314	DAM DENTAL CONCRETE	05000	CY	100.00	5,000,000
.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'	2500	LF	826.00	2,131,000
.323	SHAFTS 10X10	900	LF	1497.00	1,347,300
.32A	PORTALS - COMMON EXC	3600	CY	2.73	9,828

SUBTOTAL, PAGE 13

32,310,018

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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	5406500.00	5,406,500
SUBTOTAL, PAGE 14					6,246,400
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
332.4	RELICT CHANNEL	1	LS	37639100.00	37,639,100
SUBTOTAL, PAGE 15				37,639,100	
SUBTOTAL - ACCOUNT 332.4 RELICT CHANNEL				37,639,100	

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

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
.51G	MECHANICAL - OUTLET	1	LS	10415000.00	10,415,000
SUBTOTAL, PAGE 17					10,415,000
SUBTOTAL - ACCOUNT 332.51 OUTLET FACILITIES					25,141,535

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

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	4,000,620
.52D	ROCK EXC - CHUTE & FLIP BUCKET	1592500 ICY		11.22	17,067,050
.52F	DACKFILL	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	18.00	1,180,000
.524	SPILLWAY CONCRETE				
.52G	PIERS	40060	CY	195.00	7,943,748
.52H	DECK	350	CY	588.05	205,817
.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	3,826,888
.52L	FLIP BUCKET & OUTLET DISCHARGE STRUCTURE	28300	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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PROJECT WATANA - FERC APPLICATION

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
.520	HALF ROUNDS TO DRAINAGE GALLERY	15000	LF	10.00	150,000
.52N	SPILLWAY MECH&ELECT	1	LS	2246500.00	2,246,500
SUBTOTAL, PAGE 20					3,139,991
SUBTOTAL - ACCOUNT 332.52 MAIN SPILLWAY					77,689,134

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

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
.613	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	STRONG VSL ANCHORS INCLUDING INSTALL.	5000	LF	100.00	500,000
.61F	DRILLING 11" DIA HOLES AND GROUTING	5800	LF	15.00	87,000
SUBTOTAL, PAGE 21					60,029,086

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

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				62,276,286	

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
.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	1318200.00	1,318,200
.8	PENSTOCKS				
.811	EXC -SHAFT - 27'DIA	1800	LF	2910.00	5,252,430

SUBTOTAL, PAGE 23 15,107,430

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
.810	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 - 10'DIA	1200	LF	1120.00	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	1020	TON	2500.00	4,550,000

SUBTOTAL, PAGE 24 19,890,540

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

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
.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	3,660,000
.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
 <hr/>					
SUBTOTAL, PAGE	25				9,073,057
SUBTOTAL - ACCOUNT	332.9 TAILRACE				9,073,057

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
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		5900000.00	34,800,000
SUBTOTAL, PAGE 26					
	SUBTOTAL - ACCOUNT 333 WATERWHEELS, TURBINES&GEN..				70,800,000
					70,800,000

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
334	ACCESSORY ELECTRICAL EQUIPMENT	1	LS	21200000.00	21,200,000
SUBTOTAL, PAGE 27					21,200,000
SUBTOTAL - ACCOUNT 334 ACCESSORY ELECTRICAL					21,200,000

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
335	MISC POWER PLNT EQUIP	1	LS	13600000.00	13,000,000
SUBTOTAL, PAGE 20				13,000,000	
SUBTOTAL - ACCOUNT 335 MISC POWER PLANT EQ.				13,000,000	

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
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	AIRSTRIPE	1 LS		7010000.00	7,010,000
SUBTOTAL, PAGE 29					
					213,864,000
SUBTOTAL - ACCOUNT 336 ROADS & RAIL FACILITIES					
					213,864,000

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
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				395,550,000	

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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 COST	TOTAL COST
99	GENERAL PLANT	1	LS	5092000.00	5,092,000
SUBTOTAL, PAGE 31					5,092,000
SUBTOTAL - 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
63) CONSTRUCT. FACILITIES					
1-5 CONSTRUCTION CAMPS & PERMANENT VILLAGE (DIVIDED INTO 10 UNITS FOR PROGRAM CONVENIENCE)					
		10 LS		13000000.00	130,000,000
6 CATERING & SUPPORT					
		2227336 MD		62.30	130,763,033
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					
B1	PLANT	1 LS		1160000.00	1,160,000
SUBTOTAL, PAGE 32					
					294,500,033

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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 COST	TOTAL COST
8.	OPERATION	2700	DAYS	2680.00	7,236,000
SUBTOTAL, PAGE 33					7,236,000
SUBTOTAL - ACCOUNT (63) CONSTRUCTION CAMP					301,824,033

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	JNIT 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				2,014,372,059	

INDIRECT COST REPORT

WATANA - FERC APPLICATION
FEASIBILITY LEVEL ESTIMATE
INDIRECT COST SUMMARY

FILE # 1563-103
(L LEVY, RAM D, OEB)
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	20,893,250
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	4,091,200
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.

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RECEIVED FILED INDEXED SERIALIZED FILED
MAY 15 1984 BY OEB

PROJECT: SUSITNA - WATANA

DATE: MARCH 1, 1984

NO. #1563X103
EST. BY OEB
REV. L LEVYHARZA ENGINEERING COMPANY
INDIRECT COSTSSUMMARY OF INDIRECT COSTSC 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	436,500	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	576,000	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	24,922,300	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)

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PROJ. NO. 553-1
SUBJECT: MERSANT TUNNEL AND MILITARY CONTRACT
DATE: FEBRUARY 20, 1984

NO. 553-1
L-566EB
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

OBJ: 11
SUBJECT: PERSONNEL AND FACILITY CONTRACT
DATE: FEBRUARY 20, 1964

NO. 1563
S. ISSUED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 30. MO @	10000.	300,000
GENERAL SUPERINTENDENT	1.6 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 @	6000.	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 @	4800.	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

PROJEL: 8151... - W....H
SUBJECT: PERSONNEL AND FACILITY COSTS
DATE: FEBRUARY 28, 1984

NO. 1066-100
E EDITED
REV. L LEVY

MARZA ENGINEERING COMPANY
INDIRECT COSTS

4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 30. MO @	6000.	160,000
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

JBTOTAL - A.4 PERSONNEL - OFFICE

1,102,500

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

JBTOTAL - A.5 PERSONNEL - PURCHASING

407,500

00191
SUBJECT: UNIVERSITY TUNNEL AND FACILITIES (CONTRACT)
DATE: FEBRUARY 28, 1984

NO. 1563...
ES STUED
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.	105,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING

639,000

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY

0

PROJECT: VERNON 1984

SUBJECT: VERSION TUNNEL AND FACILITIES (CONTRACT #1)

DATE: FEBRUARY 20, 1984

REV. L LEVY

ES BY UED

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
FOKK 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 0)	16.0 X 3. TRP @	2000.	80,000
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 @	0000.	96,000

TRAVEL EXPENSE-JOB CONNECTED

LOCAL TRAVEL	27. MOS @	2000.	54,000
VACATION TRAVEL			

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
2. MEH @	30000.	60,000

TURH OVER FACTOR (10 %)

SUBTOTAL - C. TRAVEL AND ALLOWANCES 700,000

PROJECT NUMBER: 100-1000
SUBJECT: SURFACE MINING AND FACILITY CONTRACT
DATE: FEBRUARY 28, 1984

NO. 100-1000
ED 170
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

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.	100,000
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 @	2800.	69,000
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, DONA & CONTRIB.	27. MOS @	1000.	27,000
DUES, FEES, ADVERTISING & SUEIS.	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. EA	60000.	360,000
COMPUTER SERVICES	30. EA	7000.	210,000

IBTOTAL - D. MISC & MAINTENANCE EXPENSES 3,057,600

PROJECT: U.S. MILITARY AIRPORT GRT INC. TEC
SUBJECT: VERSION TUNNEL AND FACILITIES (CONTRACT #1)
DATE: FEBRUARY 28, 1984

NO. 100-1910-
ES BY UEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

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

WORKMEN'S 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

USTOTAL - E. GENERAL PLANT 2,690,000

PROJECT: MERSITE UNIT AND TURBINE CONTRACT #2
DATE: FEBRUARY 20, 1984

NO. 200
REV. 23-968
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

UBTOTAL - F. INSURANCE AND TAXES

0

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

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

UBTOTAL - G. BONDS

0

TOTAL INDIRECT COSTS

16,560,400

2

PROJECT: SUSITNA - UNTAN

SUBJECT: THE DRI EXCAVATION & GROUTING CONTRACT #2.

DATE: FEBRUARY 20, 1984

NO. 1563-A100

ED

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	1,330,256
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 NUMBER - 100-1000
SUBJECT: THE DAVIS EXCAVATION & GROUTING CONTRACT #29
DATE: FEBRUARY 20, 1994

NO. 4621.00
NO. 4621.00
100 BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

.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

UBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 777,000

.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
" " OILER	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

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

.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
REP AND CUST IN MNH	4.0 X 25. MO @	5000.	500,000
DRIVER	1.0 X 25. MO @	3500.	87,500

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

SUBJECT: ~~ENR D&E EXCAVATION & CONCRETE~~ - #2
DATE: FEBRUARY 20, 1984

NO. 63A
NO. DEFB3B
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

.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.	198,000
COMPUTER SERVICE GROUP	2.0 X 33. MO @	3500.	231,000

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

.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

JBTOTAL - A.5 PERSONNEL - PURCHASING 446,500

00191

REF. NO. - 1-2

NO. 64

PROJECT: SUEZ CANAL TUNNEL

NO. 5162103

SUBJECT: OFF DIAK EXCAVATION & GROUTING (CONTRACT #2)

25' BY 50'

DATE: FEBRUARY 28, 1984

REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

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

18TOTAL - A.6 PERSONNEL - WAREHOUSING 660,500

7 PERSONNEL - MEDICAL SAFETY

19TOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

JEC USI - L 3
SUBJ T: US DA - CAV & STL CON #
DATE: FEBRUARY 28, 1984

NU. 165
NO. E 263 B
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	1.0 X 33. MOS @	600.	10,800
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 @	600.	20,000
LONDOYS	1.0 X 25. MOS @	600.	20,000
FORK LIFTS	1.0 X 25. MOS @	1800.	25,000
TRUCK CRAHES	1.0 X 25. MOS @	15000.	375,000
DUSES	2.0 X 25. MOS @	7000.	350,000
VHHS	2.0 X 25. MOS @	600.	40,000
LICENCE FEES & PERMITS	37.0 X 3. YRS @	60.	6,650

JBTOTAL - D. VEHICLES 1,330,250

TRAVEL AND ALLOWANCES

* OF CONTRACTS = 30/18 = 2

TRAVEL TO JOB

MARRIED (2 X 8)	16.0 X 3. TRP @	2000.	80,000
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.	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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2. MEN @	30000.	60,000
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JBTOTAL - C. TRAVEL AND ALLOWANCES 646,000

00191

115 000 -1 10
 SUBJECT: ~~MR. D. EXCAVATION & CONTRACT #~~
 DATE: FEBRUARY 28, 1964

NO. 563
 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.	45,500
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.	148,500
UTILITIES & JANITORIAL SERVICES	33. MOS @	10000.	330,000
SANITARY FACILITIES	33. MOS @	3000.	90,000
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, DINNER & 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

URTOTAL - D. MISC & MAINTENANCE EXPENSES 2,912,000

SUBJECT: TIN DAM EXCAVATION & GROUTING CONTRACT #2
DATE: FEBRUARY 20, 1984

NO. 163
ED BY JED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

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

JBTOTAL - E. GENERAL PLANT

3,201,000

PRIORITY: **NA** URGENT
SUBJECT: **III DAM EXCAVATION & GROUTING (CONTRACT #2)**
DATE: **FEBRUARY 28, 1984**

NO. **167**
EE BY UEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

INSURANCE AND TAXES

INSURANCE - MAJOR EQUIPMENT

MINOR EQUIPMENT

BUILDERS RISK

TAXES - COUNTY TAX ON PLANT

STATE BUSINESS

CITY BUSINESS

MAJOR EQUIPMENT LICENSE FEES

UNITS

JBTOTAL - F. INSURANCE AND TAXES 0

RCNDS

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

UBTOTAL - G. DODNS 0

RAND TOTAL - INDIRECT COSTS **17,351.750**

3

SUBJECT: ID, EXC, H-DAM, TRET, MBNK, CFFD, PINTK (CONTRACT #3)
DATE: FEBRUARY 20, 1984

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	1,582,500
A.5 PERSONNEL - PURCHASING	541,000
A.6 PERSONNEL - WAREHOUSING	862,500
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	1,003,000
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

PROJECT NUMBER: [REDACTED]
 SUBJECT: ID. EXC. M-DAM, TRET. MONK, CFFD, PINTK (CONTRACT #3)
 DATE: FEBRUARY 28, 1984

ES BY OEO
 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 42. MO 0	10000.	420,000
GENERAL SUPERINTENDENT	1.0 X 42. MO 0	9000.	378,000
SECRETARY	1.0 X 33. MO 0	2500.	82,500
DRIVER	1.0 X 33. MO 0	3500.	115,500

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE

996,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - EXCAVATION	2.0 X 33. MO 0	8500.	560,000
SUPERINTENDENT - EMBANKMENT	2.0 X 33. MO 0	8500.	560,000
SUPERINTENDENT - DRILL & BLAST	2.0 X 33. MO 0	8500.	560,000
SUPERINTENDENT - GROUTING	2.0 X 33. MO 0	8500.	560,000
SUPERINTENDENT - ELECTRICAL	2.0 X 33. MO 0	8500.	560,000
SUPERINTENDENT - MECHANICAL	1.0 X 33. MO 0	8500.	280,500
SUPERINTENDENT - M-MECHANIC	1.0 X 42. MO 0	8500.	357,000
SERVICE TRUCK DRIVER	2.0 X 33. MO 0	6000.	390,000
TRUCK CRANE OPERATOR	2.0 X 33. MO 0	5300.	349,800
" " OILER	2.0 X 33. MO 0	8000.	530,000
BUS DRIVERS	4.0 X 33. MO 0	6000.	790,000
LOW BOY DRIVERS	1.0 X 33. MO 0	6500.	214,500
TRUCK STEAM SHED.	2.0 X 6. MO 0	6500.	78,000
BULLGANG	6.0 X 33. MO 0	4000.	790,000
DRIVERS	4.0 X 33. MO 0	2500.	330,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY

6,915,800

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 42. MO 0	9000.	378,000
FIELD ENGINEER	1.0 X 42. MO 0	6500.	273,000
COST ENGINEER	1.0 X 42. MO 0	6500.	273,000
DRAFTSMAN	2.0 X 33. MO 0	4000.	264,000
REPRODUCTION	1.0 X 33. MO 0	3000.	99,000
PARTY CHIEF 1.5 EA X 2 SHIFTS	3.0 X 33. MO 0	6500.	645,000
INSTRUMENTMAN 1.5 X 2	3.0 X 33. MO 0	6000.	595,000
ROD AND CHAIN MAN 3 X 2	6.0 X 33. MO 0	5000.	990,000
DRIVER	1.0 X 33. MO 0	3500.	115,500

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

ES BY OEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

1.4 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
STENOGRAFHERS	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

1.5 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

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

NO. 7163
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

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

NO 7363
ES BY OEB
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.	50,500
FLATBED	1.0 X 10. MOS @	600.	6,000
SERVICE TRUCKS	1.0 X 66. MOS @	800.	53,000
LONBOYS	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 @	7000.	515,000
VANS	2.0 X 33. MOS @	800.	53,000
BULLGANG 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 = 39/10 = 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

TURN OVER FACTOR (10 %)	20.0 X 1. MOS @	1500.	42,000
	3. MEN @	30000.	90,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES

676,000

0019

SUBJECT: W. EXC. T-DAIR, RET. WORK, CFFD, PINTK (CONTRACT #3)
 DATE: FEBRUARY 26, 1984

REV. L LEVY
 BY DEB

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
SANITARY 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

SUBJECT: D. EXC. H-DAM, TRET. MONK, CFFD, PINTK (CONTRACT #3)
DATE: FEBRUARY 28, 1904

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

CINNCE 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

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 RUADS

1. LS 50000. 50,000

SUBTOTAL - E. GENERAL PLANT

3,867,500

SUBJECT: 10. EXC. FROM, TRE. MBNK, LFFD, PINTK CONTRACT #3
DATE: FEBRUARY 20, 1984

RE: D. J. DEB
REV. L. LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

. INSURANCE AND TAXES

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

UBTOTAL - F. INSURANCE AND TAXES

0

. BONDS

LENGTH OF CONTRACT 24 MONTHS

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

UBTOTAL - G. BONDS

0

RAND TOTAL - INDIRECT COSTS

24,922,500

4

JEL 112 NO. 563
SUBJECT: LUDWIG, C., TRE DRAWS ALL CONTRACT #4
DATE: FEBRUARY 20, 1984

NO. 563
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	705,000
A.7 PERSONNEL - MEDICAL SAFETY	0
D. 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

SUBJECT: MILLWAY EXC., FND TREAT, DRAIN GALL (CONTRACT #4) ES BY OEB
DATE: FEBRUARY 28, 1964

HARZA ENGINEERING COMPANY
INDIRECT COSTS

.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

JBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE

914,500

.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
DULLGANG	6.0 X 26. MO @	4000.	625,000
DRIVERS	2.0 X 26. MO @	2500.	130,000

JBTOTAL - A.2 PERSONNEL - SUPERVISORY

4,672,100

.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.	200,000
REPRODUCTION	1.0 X 26. MO @	3000.	70,000
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

JBTOTAL - A.3 PERSONNEL - ENGINEERING

2,944,000

IEC : 1ST : U : R :
SUBJECT: KARZA ENGINEERING COMPANY
DATE: FEBRUARY 20, 1984

NO. 53X:
SUB REV. L LEVY

KARZA ENGINEERING COMPANY
INDIRECT COSTS

.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

JBTOTAL - A.6 PERSONNEL - WAREHOUSING

703,000

.7 PERSONNEL - MEDICAL SAFETY

JBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY

0

REJESTRUSZKI - baza

SU LUF C.

DATE: FEBRUARY 20, 1984

NU. 1. 638

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**HARZA ENGINEERING COMPANY
INDIRECT COSTS**

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

UBTOTAL - B. VEHICLES 1,617,050

• 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 @	00.	24,000

SHIPMENT OF PERSONAL GOODS

MARRIED (12 X 2) 16. EA 0 15000. 240,000
SINGLE (10 X 2) 12. EA 0 8000. 96,000

SINGLE (10 x 2)
TRAVEL EXPENSE-JOB CONNECTED

TRAVEL EXPENSE-JOB CONNECTED 16.0 X 3. TRP @ 2000. 80,000
MARRIED 16.0 X 1. TRP @ 2000. 32,000
SPOUSE 16.0 X 1. TRP @ 2000. 32,000

SINGLES

SUBSISTENCE - MEN

TURN OVER FASTER

Subtotal - C. TRAVEL AND ALLOWANCES 676,000

SEARCHED **INDEXED** **SERIALIZED** **FILED**
SAC-DET / LWA: E.C.
DATE: FEBRUARY 20, 1984

TRE... DRA... CALL... CNTR... \$4)

NO C-1563-
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES & MAINTENANCE

ITEM	DESCRIPTION	QUANTITY	UNIT	AMOUNT
OFFICE SUPPLIES		37.	MOS @	500.
OFFICE RENT (INCL TEMPORARY)		37.	MOS @	2500.
OFFICE EQUIPMENT		37.	MOS @	1500.
ENGINEERING SUPPLIES		34.	MOS @	1000.
ENGINEERING EQUIPMENT-RENTAL		34.	MOS @	3000.
PHOTOS AND REPRODUCTIONS		34.	MOS @	1000.
OUTSIDE ENGINEERING EXPENSE		1.	LS	50000.
CONSULTANT EXPENSE		1.	LS	50000.
WAREHOUSE & PURCHASE AIR		34.	MOS @	12000.
LABOR RELATED SUPPLIES		34.	MOS @	1000.
SAFETY & FIRST AID SUPPLIES		33.	MOS @	11000.
BUILDING MAINTENANCE		37.	MOS @	6000.
TELEPHONE & TELEX		37.	MOS @	4500.
UTILITIES & SANITORY SERVICES		37.	MOS @	10000.
SANITARY FACILITIES		37.	MOS @	3000.
WATER SERVICES		37.	MOS @	2000.
DRINKING WATER AND ICE		37.	MOS @	2000.
RADIO COMMUNICATIONS		37.	MOS @	7500.
LEGAL EXPENSE		1.	LS	100000.
AUDITS		1.	LS	100000.
HOME OFFICE TRAVEL-TO JOBSITE		26.	TRP @	4000.
ENTERTAINMENT, DOWA & CONTRIB.		26.	MOS @	1000.
DUES, FEES, ADVERTISING & SUBS.		26.	MOS @	100.
TEST MATERIALS		1.	LS	10000.
FIRE PROTECTION		1.	LS	25000.
PERMITS		1.	LS	5000.
POSTAGE		26.	I S @	200.
WINTER OVER EXPENSE		0.	EA	60000.
COMPUTER SERVICES		37.	EA	7000.

UBTOTAL - D. MISCELLANEOUS & MAINTENANCE EXPENSES 3,653,300

SUBJECT: 211 WAY EXC., FUD TREAT, DRAIN, GULL (CONTRACT #4)
DATE: FEBRUARY 28, 1984

FC BY 273
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

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

WORKMEN'S 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

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

BTOTAL - E. GENERAL PLANT 3,667,500

J U A
ELECT. BILL EXCL. DT. D. GAL. CONT. 100% DEB
DATE: FEBRUARY 28, 1984

NU 1062

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

SUBTOTAL - G. BONDS

0

GRAND TOTAL - INDIRECT COSTS

20,683.250

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JOE CUS
SUBJECT: ET PRO TUNA EAS. COMER / W. H. LONG. CONTRACT #5923
DATE: FEBRUARY 28, 1964

NO 563
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
B. 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

601-112-1111 - 00000

SUBJECT: LT. 145, UNL-CONCRETE, J. INT'L. UNL.

DATE: FEBRUARY 28, 1984

NO. 365-00

65) EC

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 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.	230,000
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 @	8000.	560,000
BUS DRIVERS	6.0 X 35. MO @	6000.	1,260,000
LOW BOY DRIVERS	2.0 X 35. MO @	6500.	455,000
BULLDOZER	6.0 X 35. MO @	4000.	840,000
DRIVERS	4.0 X 35. MO @	2500.	550,000

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.	400,000
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

SUBTOTAL - A.3 PERSONNEL - ENGINEERING

3,053,000

PROJEC... USI..... - U.....
SUBCT: [REDACTED] INC. IN NC. ITR
DATE: FEBRUARY 28, 1984

NU. USA.
5) E 0
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
STENOGRAFERS	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.	228,000
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 @	6000.	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

REC USE
SUBJECT: 12/FAS...JHM/END CONCRETE INC. (CONT'D. #5)
DATE: FEBRUARY 28, 1984

NO. 53
B. REC
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 30. MO @	6000.	220,000
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

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

JEC JST W
SUBJECT: THE UNION CONC. IN NC. NTR #5
DATE: FEBRUARY 20, 1984

NO. 534

122.B

REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTOS	2.0 X 30. MOS @	600.	45,600
AUTOS	1.0 X 10. MOS @	600.	6,000
PICK UPS	9.0 X 30. MOS @	600.	205,200
PICK UPS	7.0 X 30. MOS @	600.	159,600
PICK UPS	2.0 X 20. 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
PICK UPS	3.0 X 35. MOS @	600.	63,000
FLAT BEDS	1.0 X 10. MOS @	600.	6,000
FLAT BED	2.0 X 35. MOS @	600.	56,000
SERVICE TRUCKS	1.0 X 35. MCS @	600.	28,000
LOWBOYS	1.0 X 35. MOS @	1000.	35,000
FORK LIFTS	1.0 X 35. MOS @	15000.	525,000
TRUCK CRANES	1.0 X 35. MOS @	7000.	820,000
MAN HAUL BUSES	3.0 X 35. MOS @	600.	56,000
VANS	2.0 X 35. MOS @	600.	56,000
BUILDGANG TRUCK	2.0 X 35. MOS @	600.	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 3)	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
3. MEH @	30000.	90,000

TURNOVER FACTOR (10 %)

SUBTOTAL - C. TRAVEL AND ALLOWANCES

836,000

00191

PROJ. NO. 6111 CONC. P.J. INT. CONC. 450 REV. L LEVY
 SUBJECT: TIFCO UNIT CONSTRUCTION DATE: FEBRUARY 28, 1984

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

D. MISCELLANEOUS EXPENSES & MAINTENANCE

OFFICE SUPPLIES	30. MOS @ 500.	19,000
OFFICE RENT (INCL TEMPORARY)	30. MOS @ 2500.	95,000
OFFICE EQUIPMENT	30. MOS @ 1500.	57,000
ENGINEERING SUPPLIES	35. MOS @ 1000.	35,000
ENGINEERING EQUIPMENT-RENTAL	35. MOS @ 3000.	105,000
PHOTOS AND REPRODUCTIONS	75. 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	30. MUS @ 6000.	228,000
TELEPHONE & TELEX	30. MOS @ 4500.	171,000
UTILITIES & JANITORIAL SERVICES	30. MOS @ 10000.	300,000
SANITARY FACILITIES	30. MUS @ 3000.	114,000
WATER SERVICES	30. MOS @ 2000.	76,000
DRINKING WATER AND ICE	30. MOS @ 2000.	76,000
RADIO COMMUNICATIONS	30. MOS @ 7500.	295,000
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. MUS @ 200.	7,000
WINTER OVER EXPENSE	4. EA 60000.	240,000
COMPUTER SERVICES	30. EA 7000.	266,000

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

3E1 US - 6-7
CTE T/R JUN CON J. I. INC INTL #51 ED
DATE: FEBRUARY 28, 1984 NO. 163 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
1. LS	400000.	400,000
1. LS	500000.	500,000
1. LS	30000.	30,000
2. EA	30000.	60,000
2. EA	30000.	60,000
1. LS	35000.	35,000
1. LS	50000.	50,000
4. EA	10000.	40,000
1. LS	20000.	20,000
1. LS	50000.	50,000
1. LS	450000.	450,000
1. LS	100000.	100,000
1. LS	750000.	750,000
1. LS	200000.	200,000
1. LS	50000.	50,000
1. LS	250000.	250,000
1. LS	500000.	500,000
1. LS	100000.	100,000
1. LS	50000.	50,000
1. LS	50000.	50,000

SUBTOTAL - E. GENERAL PLANT

4,060,000

CONTRACT NO. 117-100-0000
DATE: FEBRUARY 28, 1964

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

SUBTOTAL - G. BONDS 0

GRAND TOTAL - INDIRECT COSTS 25,465,300

6

LJL JUS - I A

NU 563.1

ECTI VER L1 (EX COU TE) DNT #6 Y EB
DATE: FEBRUARY 29, 1984

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	6,179,000
E. GENERAL PLANT	3,405,000
F. INSURANCE AND TAXES	0
G. BONDS	0
GRAND TOTAL INDIRECT COSTS	41,291,900

PROJECT: U.S. 1000' TUNNEL

OBJECT: TUNNEL FACILITIES (EXC. & CONCRETE) CONTRACT #6

DATE: FEBRUARY 29, 1984

NO. 563-1000

25 3/4 SEC

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 30. MO @	9000.	342,000
SECRETARY	1.0 X 56. MO @	2500.	140,000
DRIVER	1.0 X 60. 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.	1,088,000
ROD AND CHAIN MAN	6.0 X 56. MO @	5000.	1,680,000
DRIVER	1.0 X 56. MO @	3500.	196,000

TEL: US1
SUBJECT: GULF FACILITIES (EXC. G CONCRETE). (CONTRACT #6) NO. 571 BY CEO
DATE: FEBRUARY 29, 1984 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.	260,000
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.	440,000
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 960,000

LIF US A
SUBJECT: [REDACTED] FACILITIES (EXC. CONCRETE). (CONT'D. #6) NO. 463-5
DATE: FEBRUARY 29, 1984

REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.6 PERSONNEL - WAREHOUSING

CHIEF WAREHOUSEMAN	1.0 X 56. MO Q	6000.	336,000
RECEIVING CLERK	2.0 X 56. MO Q	2500.	280,000
RECORDS CLERK	1.0 X 56. MO Q	2500.	140,000
TEAMISTER	1.0 X 56. MO Q	4000.	224,000
FUEL DISPATCHER	2.0 X 56. MO Q	3500.	392,000
FORK LIFT OPERATOR	2.0 X 56. MO Q	3500.	392,000

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

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

SELECT: ~~SEER~~ ~~W. G. MITTE~~ (EXC) ~~COCONUTTED~~. CONTRACT #60
DATE: FEBRUARY 29, 1984

REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. VEHICLES OPERATING EXPENSE X 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
MEN HAUL BUSES	3.0 X 56. MOS @	7200.	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

E. TRAVEL AND ALLOWANCES

OF CONTRACTS = 56/10 = 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. MOS @	1500.	81,000
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TURNOVER FACTOR (10 %)	3. MEN @	30000.	90,000
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SUBTOTAL - E. TRAVEL AND ALLOWANCES 1,209,000

1. IFC. USE - L... 0

2. SELECT: OTHER FACILITIES (EXC. CO-OPED) CONTR. #46)

DATE: FEBRUARY 29, 1984

NO. 631

1/2/84

REV. L LEVY

HARZA ENGINEERING COMPANY

INDIRECT COSTS

D. MISCELLANEOUS EXPENSES & MAINTENANCE

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

SUBTOTAL - D. MISC & MAINTENANCE EXPENSES

6,179,600

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SELECT: ~~1~~ 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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
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WAREHOUSE

(8000 SF @ \$ 50/SF)

1. LS	400000.	400,000
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GENERAL YARD AND SITE GRADING

1. LS	500000.	500,000
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HOSPITAL OR FIRST AID TRAILER

1. LS	30000.	30,000
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INSPECTOR FIELD OFFICES

2. EA	30000.	60,000
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FIELD OFFICES

2. EA	30000.	60,000
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SHOWER AND LOCKERROOMS

1. LS	35000.	35,000
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CHANGE HOUSE

1. LS	50000.	50,000
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WORKMEN'S SHELTERS

4. EA	10000.	40,000
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TOOL SHEDS

1. LS	10000.	10,000
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WELDING AND BLACKSMITH SHOP

1. LS	50000.	50,000
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MECHANIC SHOP

1. LS	450000.	450,000
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TIRE REPAIR

1. LS	100000.	100,000
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LIGHT&POWER INST&REM

1. LS	200000.	200,000
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TELEPHONE INST&REM

1. LS	50000.	50,000
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WATER SYSTEM INST&REM

1. LS	250000.	250,000
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HEAT SYSTEM INST&REM

1. LS	500000.	500,000
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SANITARY SYSTEM INST&REM

1. LS	100000.	100,000
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FIRE PROTECTION

1. LS	50000.	50,000
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RADIO COMMUNICATION

1. LS	50000.	50,000
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SUBTOTAL - E. GENERAL PLANT

3,405,000

JEL US: - 6.....A

NO. 13631...

CT ER LIT (EX CO T) NTE #6

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

SUBTOTAL - G. BONDS

0

GRAND TOTAL - INDIRECT COSTS

41,291,900

7

PROJECT: SUSITNA - UNTANA

NO. #1563X103

SUBJECT: I-DOA: EMBANKMENT & RELICT CHANNEL. (CONTRACT #7)

ES BY OEB

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	813,000
A.6 PERSONNEL - WAREHOUSING	1,240,500
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	3,313,900
C. TRAVEL AND ALLOWANCES	1,562,000
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

PROJ. NO. - L-.....

ACT: DRAFT & DIRECT CHNL. INTR. #7)

NU. 3637

DATE: FEBRUARY 29, 1964

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	1,249,500
A.7 PERSONNEL - MEDICAL SAFETY	0
B. VEHICLES	3,313,000
C. TRAVEL AND ALLOWANCES	1,582,000
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

REF. NO: - 6 10
SUBJECT: DUGOUTS, SHAKES & REEFT CHANNEL. CONTRACT #7 NO. 163
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 @	0500.	610,000
SUPERINTENDENT - DRILL&BLAST	2.0 X 36. MO @	0500.	610,000
SUPERINTENDENT - ENANKMENT	2.0 X 36. MO @	0500.	610,000
SUPERINTENDENT - ELECTRICAL	2.0 X 36. MO @	0500.	610,000
SUPERINTENDENT - MECHANICAL	2.0 X 36. MO @	0500.	610,000
PLANT SAND & GRAVEL	2.0 X 36. MO @	0500.	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
DUG DRIVERS	6.0 X 36. MO @	6000.	1,296,000
LOW DUG DRIVERS	2.0 X 36. MO @	6500.	468,000
BULLDOZER	6.0 X 36. MO @	4000.	865,000
DRIVERS	4.0 X 36. MO @	2500.	360,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 9,036,000

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 73. MO @	0000.	555,000
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.	100,000
PARTY CHIEF	2.0 X 36. MO @	6500.	460,000
INSTRUMENTMAN	2.0 X 36. MO @	6000.	422,000
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

116 515
SUBJECT: 4-PAINT EMBANKMENT & RETIC CHANNEL. (CONTRACT #7)
DATE: FEBRUARY 29, 1984

NO 563
BY CED
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
STENOGRAFERS	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 36. MO @	3500.	252,000

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

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 51. MO @	8000.	400,000
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

PROJECT: I-DAN JH

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

REV. L LEVY

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: T-DOAN ENGRANKMENT & REJECT CHANNEL. (CONT'D. #7) NO. 562
DATE: FEBRUARY 29, 1984 BY JED
REV. L LEVY

HAPZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

AUTO	2.0 X 75. MOS @	600.	50,000
AUTO	2.0 X 70. MOS @	600.	64,000
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.	69,000
LOWDOYS	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 @	7000.	1,193,000
VANS	2.0 X 51. MOS @	800.	81,500
GULLGANG 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 = 70/10 = 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
TURH OVER FACTOR (10 %)	3. MEN @	30000.	90,000

SUBTOTAL - C. TRAVEL AND ALLOWANCES 1,582,000

LFL US1 A
SELECT - DALE BANKHORN & REILLY COUNSEL. INC. (707) 555-1234
DATE: FEBRUARY 29, 1984

NO. 163

G-42B

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. M@	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 & SUDS.	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. MIS & MAINTENANCE EXPENSES

7,199,300

SUBJECT 4-DALE ENDANKMENT & RELICT CHANNEL. (CONTRACT #7) BY UEB
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

(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 75000. 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

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SUBJECT: Y-DAH EMBANKMENT & RELICT CHANNEL. (CONTRACT #7) EF BY DEB
DATE: FEBRUARY 29, 1984 RE: 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

- 112 -

SUBTOTAL - F. INSURANCE AND TAXES

8

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @

NET \$2,490,000

NEXT \$2,500,000 9

OVER \$5,000,000 *

FIX VOLUME

.0	% OF	0.	0
.0	% OF	0.	0
.6	% OF	0.	0
.5	% OF	0.	0
1.FIX		0.	0

SUBTOTAL - G. DODDS

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GRAND TOTAL - INDIRECT COSTS

36,753,200

8

INFO: US1
SELECT: REGIME CONCRETE CORP. LY CONTR. #8
DATE: FEBRUARY 29, 1984

REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE	450,000
A.2 PERSONNEL - SUPERVISORY	2,143,600
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	426,600
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	7,190,900

150 101
PROJECT: AGGREGATE & CONCRETE SUPPLY CONTRACT #48
DATE: FEBRUARY 29, 1964

150 101 63X
BY JEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 10. MO @	10000.	100,000
GENERAL SUPERINTENDENT	1.0 X 10. MO @	9000.	162,000
SECRETARY	1.0 X 10. MO @	2500.	45,000
DRIVER	1.0 X 10. MO @	3500.	63,000

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE

450,000

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - ELECTRICAL	2.0 X 10. MO @	8500.	306,000
SUPERINTENDENT - MECHANICAL	2.0 X 10. MO @	8500.	306,000
SUPERINTENDENT - PLANT	2.0 X 10. MO @	8500.	306,000
MASTER MECHANIC	1.0 X 10. MO @	6500.	153,000
SERVICE TRUCK DRIVER	2.0 X 10. MO @	6000.	216,000
TRUCK CRANE OPERATOR	2.0 X 10. MO @	5300.	190,800
" " OILER	2.0 X 10. MO @	8000.	268,000
BULLDOZER CREW	4.0 X 10. MO @	4000.	283,000
DRIVERS	2.0 X 10. MO @	2500.	90,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY

2,143,000

A.3 PERSONNEL - ENGINEERING

PLANT ENGINEER	1.0 X 10. MO @	6500.	117,000
CLERK	1.0 X 10. MO @	2500.	45,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING

162,000

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CONCRETE REINFORCED & CONCRETE SUPPLY CONTRACT #
DATE: FEBRUARY 29, 1984

NO. 10632

EB

REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 10. MO @	6000.	100,000
TIMEKEEPERS	2.0 X 10. MO @	2500.	50,000
JANITORS	1.0 X 10. MO @	3000.	54,000

SUBTOTAL - A.4 PERSONNEL - OFFICE

252,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING

0

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

ES BY OEB
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.	50,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING

150,000

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY

0

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

ES BY OED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

B. VEHICLES OPERATING EXPENSE / RENTAL

PICKUP	11.0 X 10. MOS @	600.	118,800
FLATBED	2.0 X 18. MOS @	600.	21,600
SERVICE TRUCKS	1.0 X 10. MOS @	000.	14,400
TRUCK CRANES	1.0 X 10. 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

NO TURN OVER	5.0 X 1. TRP @	1500.	7,500
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SUBTOTAL - C. TRAVEL AND ALLOWANCES 106,500

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

ES BY OED
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

D. MISCELLANEOUS EXPENSES & MAINTENANCE

OFFICE SUPPLIES	10. MOS @	500.	9,000
OUTSIDE ENGINEERING EXPENSE	1. LS	50000.	50,000
CONSULTANT EXPENSE	1. LS	50000.	50,000
WAREHOUSE & PURCHASE AIR	10. MOS @	5000.	30,000
SAFETY & FIRST AID SUPPLIES	10. MOS @	3000.	54,000
BUILDING MAINTENANCE	10. MOS @	6000.	108,000
TELEPHONE & TELEX	10. MOS @	4500.	81,000
UTILITIES & JANITORIAL SERVICES	10. MOS @	10000.	190,000
SANITARY FACILITIES	10. MOS @	3000.	54,000
WATER SERVICES	10. MOS @	2000.	36,000
DRINKING WATER AND ICE	10. MOS @	2000.	36,000
RADIO COMMUNICATIONS	10. MOS @	7500.	135,000
LEGAL EXPENSE	1. LS	30000.	30,000
AUDITS	1. LS	20000.	20,000
HOME OFFICE TRAVEL-TO JOBSITE	10. TRP @	4000.	72,000
ENTERTAINMENT, DINNER & CONTRIB.	10. MOS @	1000.	18,000
TUES, FEES, ADVERTISING & SUBS.	10. 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	10. EA	7000.	126,000

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

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ECT [REDACTED] & C ETC [REDACTED] CON [REDACTED]
DATE: FEBRUARY 29, 1984

NO: 365
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 LOCKERROOMS

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

SUBJECT: AGGREGATE & CONCRETE SUPPLY (CONTRACT #8)
DATE: FEBRUARY 29, 1964

ESP BY JED
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 \$2,560,000 @	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

7,190,900

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SUBJECT: ILLWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #9) EG 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. DODDS	0
GRAND TOTAL INDIRECT COSTS	16,116,900

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SUBJECT: TILLWAT CONCRETE
DATE: FEBRUARY 29, 1964

NO 100-1000-0000
(CONTRACT #9) BY OED
REV. 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
SECRETARY	1.0 X 27. MO @	2500.	67,500
DRIVER	1.0 X 27. MO @	3500.	94,500

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 675,000

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.	280,000
BUS DRIVERS	4.0 X 10. MO @	6000.	432,000
LOW BOY DRIVERS	2.0 X 10. MO @	6500.	234,000
BULLDOZER	6.0 X 10. MO @	4000.	432,000
DRIVERS	2.0 X 10. MO @	2500.	90,000

SUBTOTAL - A.2 PERSONNEL - SUPERVISORY 3,106,000

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 @	6300.	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.	360,000
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

SUBJECT: MILLWRIGHT CONCRETE
DATE: FEBRUARY 29, 1964

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

HARZA ENGINEERING COMPANY INDIRECT COSTS

A.1 PERSONNEL - ADMINISTRATIVE

PROJECT MANAGER	1.0 X 27. MO @	10000.	210,000
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

SUBTOTAL - A.1 PERSONNEL - ADMINISTRATIVE 675,200

A.2 PERSONNEL - SUPERVISORY

SUPERINTENDENT - CONCRETE	2.0 X 18. MO @	8500.	306,000
SUPERINTENDENT - FORMS	2.0 X 10. MO @	8500.	306,000
SUPERINTENDENT - ELECTRICAL	2.0 X 10. MO @	8500.	306,000
SUPERINTENDENT - MECHANICAL	2.0 X 18. MO @	8500.	306,000
SERVICE TRUCK DRIVER	2.0 X 10. MO @	6000.	216,000
TRUCK CRANE OPERATOR	2.0 X 10. MO @	5300.	190,800
" " OILER	2.0 X 10. MO @	8000.	280,000
SUS DRIVERS	4.0 X 10. MO @	6000.	432,000
LOW BOY DRIVERS	2.0 X 10. MO @	6500.	234,000
DULLGANG	6.0 X 10. MO @	4000.	432,000
DRIVERS	2.0 X 10. MO @	2500.	90,000

SUMMARY - 0.2 PERSONNEL - SUPERVISORY **3,106,000**

A.3 PERSONNEL - ENGINEERING

PROJECT ENGINEER	1.0 X 27.	MO Q	9000.	243,000
OFFICE ENGINEER	1.0 X 27.	MO @	6500.	175,500
FIELD ENGINEER	1.0 X 27.	MO Q	6500.	175,500
COST ENGINEER	1.0 X 27.	MO Q	6500.	175,500
PLANT ENGINEER	1.0 X 5.	MO Q	6500.	32,500
DRAFTSMAN	6.0 X 10.	MO Q	4000.	432,000
REPRODUCTION	1.0 X 10.	MO Q	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.	360,000
SECRETARY	1.0 X 10.	MO Q	2500.	45,000
DRIVER	1.0 X 10.	MO Q	3500.	63,000

SUBTOTAL - A.3 PERSONNEL - ENGINEERING 2,206,000

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SUBJECT: MILLWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #3) ES BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

A.4 PERSONNEL - OFFICE

OFFICE MANAGER	1.0 X 27. MO 0	6000.	162,000
ACCOUNTANTS	1.0 X 10. MO 0	3500.	63,000
TIMEKEEPERS	4.0 X 10. MO 0	2500.	100,000
PAYMASTER	1.0 X 10. MO 0	2500.	45,000
CLERKS	2.0 X 10. MO 0	2500.	90,000
STENOGRAPHERS	1.0 X 10. MO 0	3000.	54,000
SWITCHBOARD RECEPTIONIST	1.0 X 10. MO 0	3000.	54,000
JANITORS	2.0 X 10. MO 0	3000.	108,000
COMPUTER SERVICE GROUP	2.0 X 56. MO 0	3500.	392,000

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

A.5 PERSONNEL - PURCHASING

PURCHASING AGENT	1.0 X 27. MO 0	8000.	216,000
CLERKS	1.0 X 27. MO 0	2500.	67,500
PORT AGENT	1.0 X 5. MO 0	3500.	17,500
CLERK	1.0 X 5. MO 0	2500.	12,500
TELETYPE	1.0 X 5. MO 0	4000.	20,000

SUBTOTAL - A.5 PERSONNEL - PURCHASING 333,500

SUBJECT: MILLWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #9) EST BY OEB
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.	169,000
FORK LIFT OPERATOR	2.0 X 27. MO @	3500.	169,000

SUBTOTAL - A.6 PERSONNEL - WAREHOUSING 850,500

A.7 PERSONNEL - MEDICAL SAFETY

SUBTOTAL - A.7 PERSONNEL - MEDICAL SAFETY 0

SUBJECT: TILWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #9) 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 @	600.	21,600
LOWBOYS	1.0 X 27. MOS @	600.	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 @	7600.	630,000
VANS	2.0 X 27. MOS @	600.	43,200
DOZING TRUCK	1.0 X 27. MOS @	800.	21,600
LICENSE FEES & PERMITS	38.0 X 27. MCS @	60.	61,500

SUBTOTAL - B. VEHICLES 1,580,700

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
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TURN OVER FACTOR (10 %)	2. MEN @	30000.	60,000
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SUBTOTAL - C. TRAVEL AND ALLOWANCES 690,000

SUBJECT: TILLWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #9) ES BY OEB
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	10. MOS @	3000.	54,000
PHOTOS AND REPRODUCTIONS	19. 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	10. 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	10. MOS @	2000.	36,000
DRINKING WATER AND ICE	10. 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, DINNER & CONTRIB.	10. MOS @	1000.	19,000
DUES, FEES, ADVERTISING & SUOS.	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

SUBJECT: MILLWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #3) ES BY OED
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 LOCKERROOMS

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

SUBJECT: MILLWAY CONCRETE
DATE: FEBRUARY 29, 1984

(CONTRACT #9) RE 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: LTES & HOIST (CONTRACT #10)
DATE: FEB. JARY 29, 1984

ES BY DEB
REV. L LEVY

KARZA ENGINEERING COMPANY
INDIRECT COSTS

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
B. 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

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CONTRACT NO. 137-
DATE: FEBRUARY 29, 1984

(CONTRACT NO.)

NO. 63
REV. E. CED
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 @	0500.	119,000
SUPERINTENDENT - ELECTRICAL	2.0 X 7. MO @	0500.	119,000
SUPERINTENDENT - MECHANICAL	2.0 X 7. MO @	0500.	119,000
TRUCK CRANE OPERATOR	2.0 X 7. MO @	5300.	74,000
" " OILER	2.0 X 7. MO @	0000.	112,000
FLATBED	2.0 X 7. MO @	6900.	94,000
LOW DRY DRIVERS	2.0 X 7. MO @	6500.	91,000
DOG 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 @	6300.	45,500
PLANT ENGINEER	1.0 X 7. MO @	6500.	45,500
DRAFTEMAN	3.0 X 7. MO @	4900.	84,000
REPRODUCTION	1.0 X 7. MO @	3000.	21,000
PARTY CHIEF	1.0 X 7. MO @	6500.	45,500
INSTRUMENTATION	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

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PROJECT: SUSTAINABILITY
SUBJECT: LTES & HOIST
DATE: FEBRUARY 29, 1984

(CONTRACT #10)

NUMBER OF MONTHS:
ES BY DEC
REV: L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

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

SUBJECT: LITES & HOIST
DATE: FEBRUARY 29, 1964

(CONTRACT #10)

EST. BY UEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

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

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SUBJECT: LTES & HOIST
DATE: FEBRUARY 29, 1984

(CONTRACT #10)

003.
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 CUSES	1.0 X	7. MOS @	7000.	54,500
LICENSE FEES & PERMITS	10.0 X	1. YRS @	00.	1,080

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	2. EA @	8000.	16,000	
SINGLE	2.0 X	1. TRP @	2000.	4,000
TRAVEL EXPENSE-JOB CONNECTED	2.0 X	3. MOS @	1500.	9,000
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

SUBJECT: CRATES & HOIST (CONTRACT #10)
DATE: FEBRUARY 29, 1984

ED BY DEB
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, DINNER & CONTRIB.	7. MOS @	1000.	7,000
DUES, FEES, ADVERTISING & SUDS.	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

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 SUBJECT: LINES & HOIST
 DATE: FEBRUARY 29, 1984

(CONTRACT #10)

ES BY DEB
 REV. L LEVY

HARZA ENGINEERING COMPANY
 INDIRECT COSTS

E. GENERAL PLANT

OFFICES

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

1. LS 140000. 140,000

WAREHOUSE

(6000 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

WORKMEN'S 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

RADAR COMMUNICATION

1. LS 150000. 150,000

SUBTOTAL - E. GENERAL PLANT 1,070,000

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SUBJECT: TIES & HOIST
DATE: FEBRUARY 29, 1984

(CONTRACT #10)

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

0

G. BONDS

LENGTH OF CONTRACT 24 MONTHS

1ST \$100,000 @	1.0	% OF	9.	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

4,691.200

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

EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

SUMMARY OF INDIRECT COSTS

A. AMBULANCE SERVICE	\$2,397,200
B. AIRPORT SERVIVE	3,638,000
C. POWDER HOUSE	2,921,450
D. CAP HOUSE	23,500
E. CONSTRUCTION LIGHTING	12,408,000
F. SNOW REMOVAL	4,868,000
G. FUEL STORAGE & DISPATCHING	2,334,000
H. HAUL ROADS	22,000,000
GRAND TOTAL INDIRECT COSTS	60,590,150

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

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 TH 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

OPERATION (10%)

4. UNITS 110000. 440,000

40. \$/HR 10980. 439,200

SUBTOTAL - A. AMBULANCE SERVICE

12,397,200

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

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 @ 312800. 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 3,630,000

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

EST. BY DEB
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

ROUNDED TOTAL

C. POWDER HOUSE

OPEN CUT EXCAVATION

BCY = 6,190,000

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. 2,675,800

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

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

EST. BY DEB
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 /KU-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-
TRUCTION 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

711

PPG : NA TA
SUBJECT: INDIRECT COSTS FOR ALL CONTRACTS
DATE: MARCH 27, 1984

EST. BY OLE
REV. L LEVY

HARZA ENGINEERING COMPANY
INDIRECT COSTS

ROUNDED TOTAL

H. HAUL ROADS

APPROXIMATELY 10 MILES
OF HAUL ROADS ARE REQUIRED.
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