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UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

AGENCY FOR INTERNATIONAL DEVELOPMENT

CAIRO, EGYPT

PROJECT PAPER

PROJECT NO. 263-0160

SEPTEMBER 1987

EGYPT: REHABILITATION AND MODERNIZATION OF THE ASWAN HIGH DAM HYDROELECTRIC POWER STATION - AMENDMENT NO. 1

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AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1/

1. TRANSACTION CODE (A = Add, C = Change, D = Delete)	Amendment Number	DOCUMENT CODE
C	1	3

2. COUNTRY/ENTITY: EGYPT

3. PROJECT NUMBER: 263-0160

4. BUREAU/OFFICE: ANE 03

5. PROJECT TITLE (maximum 40 characters): HIGH DAM REHABILITATION/MODERNIZATION

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 04 DD 12 YY 92

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4): A. FY 82 B. Quarter 2 C. Final FY 87

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY 82 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total	85,000		85,000	140,000		140,00
(Grant)	(85,000)	( )	(85,000)	(140,000)	( )	(140,00
(Loan)	( )	( )	( )	( )	( )	(
Other U.S. 1.						
Other U.S. 2.						
Host Country		9,200	9,200		12,100	12,10
Other Donor(s)						
TOTALS	85,000	9,200	94,200	140,000	12,100	152,10

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	C. 2. Loan	D. OBLIGATIONS TO DATE 1. Grant	D. 2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	E. 2. Loan	F. LIFE OF PROJECT 1. Grant	F. 2. Loan
(1) ESF	740B	825		100,000		40,000		140,000	
(2)									
(3)									
(4)									
TOTALS				100,000		40,000		140,000	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

11. SECONDARY PURPOSE C

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code

B. Amount

13. PROJECT PURPOSE (maximum 480 characters)

To improve the reliability and economy of operation of the Aswan High Dam Hydroelectric Power Station and to maintain its contribution to the Unified Power System of Egypt.

14. SCHEDULED EVALUATIONS: Interim MM 01 YY 87 MM YY Final MM 04 YY 93

15. SOURCE/ORIGIN OF GOODS AND SERVICES: [X] 000 [ ] 941 [ ] Local [ ] Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a ____ page PP Amendment.)

To provide additional foreign exchange to assist in financing the foreign exchange costs of the rehabilitation and modernization of the Aswan High Dam Hydroelectric Power Station and 500KV transmission line protection

USAID/EGYPT Controller concurs with the proposed methods of implementation and financing.

9/7/87 William A. Miller
Controller

17. APPROVED BY

Signature:

Title:

16 SEP 1987

Date Signed: SEP 1987

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY

EGYPT - REHABILITATION AND MODERNIZATION OF THE ASWAN HIGH DAM HYDROELECTRIC POWER STATION

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References:

1. AID Project Paper, "Egypt: Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station", Project No. 263-0160 dated January 1982.

2. U.S. Bureau of Reclamation Report on EEA request for USAID funding, Replacement of Power Circuit Breakers and Modernization of Controls and Protective Relaying at the Aswan High Dam, dated January 20, 1982.

GLOSSARY OF ABBREVIATIONS

A/C	Allis-Chalmers Manufacturing Company
AID	Agency for International Development
AID/W	Agency for International Development - Washington, D.C.
BUREC	U.S. Department of Interior - Bureau of Reclamation
DR/UAD	Development Resources Division, Office of Urban Administration and Development
EEA	Egyptian Electricity Authority
GCII	Gilbert/Commonwealth International, Inc.
GOE	Government of Egypt
km	Kilometers
KV	Kilovolt
L/Comm	Letter of Commitment
MEE	Ministry of Electricity and Energy
MVA	Mega volt-amperes
MW	Mega watt
PACD	Project Assistance Completion Date
PASA	Participating Agency Services Agreement
SF-6	Sulfur-Hexaflouride Gas
TDD	Terminal Disbursement Date
UPS	Unified Power System
USAID	United States Agency for International Development
Voith	Voith Hydro, Inc.

EGYPT - REHABILITATION AND MODERNIZATION OF THE ASWAN HIGH DAM HYDROELECTRIC POWER STATION - AMENDMENT NO. 1

SUMMARY AND RECOMMENDATIONS

1. Grantee: The Arab Republic of Egypt.

2. Grant Application: The GOE has requested an additional AID Grant for the project to assist in financing the foreign exchange costs of this Project. The application is attached as Annex A.

3. Grant Amount: U.S. $40 million, increasing Grant No. 263-0160 from $100 million to $140 million.

4. Implementing Agency: The Egyptian Electricity Authority (EEA), a seperate entity within the Ministry of Electricity and Energy (MEE).

5. Terms to the Implementing Agency: A loan to the EEA.

6. Project Amendment Purpose: To provide improved reliability and economy of operation of the Aswan High Dam Hydroelectric Power Station and 500KV transmission system.

7. Project Description: U.S. contractors will: design, manufacture, replace and test 1) Francis turbine runners; 2) 500KV circuit breakers; 3)transmission line and bus protective relaying; 4) and control instrumentation; and will rehabilitate water passages, trash racks and operating, maintenance and emergency gates all associated with the twelve (12) hydro turbine generators. Each contractor will provide necessary related technical assistance and training during manufacturing, rehabilitation and modernization of the facilities. The U.S. Department of Interior, Bureau of Reclamation will provide technical assistance during manufacturing and supervision during installation, testing and start-up in Egypt.

8. Total Project Cost: Total Project Cost, both foreign exchange and local currency equivalent is $152.1 million. AID will finance foreign exchange cost up to $140 million under this authorization.

9. Environmental Considerations: The environmental impact on air and water quality of the hydroelectric power station and 500 KV protective relaying system rehabilitation and modernization have been addressed in the Project.

10. Source of U.S. Funds: Fiscal Year 87 Economic Support Funds.

11. Statutory Requirements: All statutory criteria have been satisfied; see Annex D.

12. Project Committee Recommendation: That the Mission Director: (a) authorize an Amendment to Grant 263-0160 to increase the Grant funds from $100 million to $140 million in accordance with the terms and conditions set forth in the draft Grant Authorization Amendment which is appended hereto as Annex B; and (b) specifically, within such amendment, approve the waiver of AID competitive procurement procedures, as required under OMB Circular 76, to permit EEA to negotiate an amendment to the BUREC's Memorandum of Understudying for additional engineering advisory services.

13. Project Committee:

USAID/Cairo:

Project Committee Chairman:	John P. Hunt, DR/UAD
Project Committee:	Adele Abadir, HRDC/TNG
	Thomas Johnstone, FM/FA
	Elaine Kelly, IS/CMT
	Vicky Kunkle, PPP/P
	Kevin O'Donnell, LEG
	Charles Richter, PPP/E

I. INTRODUCTION

A. Background:

1.01 On March 29, 1982, AID approved a Grant of $100 million to the Government of Egypt to assist in financing the foreign exchange costs of replacing the hydro-turbine runners, circuit breakers, instrumentation and relaying and for the rehabilitation of a portion of the water passages and components of the twelve hydro turbine generators at the High Dam Hydroelectic Power Station. Grant funds were to be provided incrementally. The Grant Agreement which provided $85 million, was signed on April 12, 1982. Amendment No. 1 to the Grant Agreement, providing the balance of $15 million was signed on March 31, 1986 without a Project Paper Amendment. A detailed appraisal of the project is included in the Project Paper, "Egypt: Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station, Project No. 263-0160, January 1982". (Reference 1)

1.02 The implementing agency for the project is the Egyptian Electricity Authority (EEA), a seperate entity of the Ministry of Electricity and Energy (MEE), responsible for the bulk power supply of electricity to Egypt. The Grant was passed to EEA by the GOE as a contribution to EEA's equity capital thereby assisting EEA in moving toward a more effective capitalization and improving their cash flow.

1.03 In authorizing the project (Annex E), the Administrator waived competitive selection procedures and authorized EEA to: a) negotiate a contract with Allis-Chalmers Manufacturing Company (A/C) for the design, testing, fabrication, supply and installation of the twelve hydro-turbine runners and associated rehabilitation of the hydro-turbine generators and water passages. The contract was signed on June 3, 1982; b) utilize the services of the Department of Interior, Bureau of Reclamation as systems engineer. EEA and BUREC negotiated a scope of services and a PASA agreement was signed in August, 1982.

1.04 In authorizing the project, the Administrator also made an affirmative determination for commingling foreign assistance funds to support a project which hitherto had been primarily identified with the communist bloc by concluding that U.S. Foreign Assistance for this project is in the best interest of the United States.

1.05 The design of the hydro-turbine runners was confirmed in laboratory testing in October 1982 and fabrication of the runners began in early 1983. The runners on Units 9 and 10 have been replaced and have been in operation since May 1986. During inspection of the generators on these two units, the need to clean and repair damaged insulation and to rewedge the stator windings was identified and the A/C contract was amended to include this additional work for all twelve units. The A/C contract has been renegotiated to more accurately fix the schedule and cost (as provided for in the contract) and the contract has been assigned to Voith Hydro Inc. (Voith) following their purchase of the Allis-Chalmers Hydro Turbine Division in September 1986.

1.06 Replacement of the turbine runners on Units 1 and 2 began in October, 1986. Work is progressing on schedule for completion in mid-August 1987.

1.07 During the development of the project in late 1981, EEA had requested that AID finance replacement of obsolete 500KV and 132 KV air blast circuit breakers, protective relaying and instrumentation. The BUREC inspected this equipment in late 1981 and concluded that plant performance was being impaired due to obsolescence, lack of replacement parts and slow response times of the equipment. The BUREC recommended that the circuit breakers be replaced with modern high speed interruption circuit breakers, state-of-the-art static or electromechanical protective relays and modern instrumentation. A copy of the BUREC report (Reference 2) is available in the DR/UAD files.

1.08 In 1983 EEA adopted operating procedures which limited the magnitude of short - circuit currents that the 132 KV circuit breakers are required to interrupt and on May 17, 1983 EEA requested that these circuit breakers by deleted from the scope of the project replacement program. EEA also requested that the scope of the project be expanded to include the replacement of four 500KV circuit breakers at the Nag Hammadi substation, 236 km north of the High Dam and replacement of the primary and secondary transmission line protective relaying on the two-788km. 500KV transmission lines which transmit the energy generated at the High Dam to load centers in Cairo and the Nile Delta.

1.09 On June 20, 1983 USAID agreed to include within the scope of the project the circuit breaker replacement at Nag Hammadi and the protective relay replacement on the 500KV transmission lines and to delete from the project scope the replacement of the 132 KV circuit breakers. EEA is currently replacing the 500 KV circuit breakers in the 500 KV substations at Cairo and Samalut with West German SF-6 circuit breakers and intends to replace the 500 KV circuit breakers on the Nag Hammadi-High Dam circuits terminating at the Nag Hammadi and High Dam Substation. Therefore, the scope of the project will include only the replacement of ten 500 KV circuit breakers at the High Dam.

B. Current Financing Requirements:

1.10 The original need and cost estimates to replace or modernize circuit breakers, relaying and instrumentation were based upon data collected during BUREC site inspections in late 1981. During the more detailed evaluations, made prior to and during the development of specifications required for procurement of equipment and services, major inadequacies in the supporting systems were identified which necessitated more extensive upgrading than that originally contemplated:

a. Existing control cable and 500 KV instrument transformers, originally believed useful, were found to be either in a deteriorated condition or not of sufficient accuracy to integrate into the improved protective relay system thereby increasing the cost by $9.5 million.

b. Substantial information necessary for the reliable operation of the power station is not being collected and recorded and without adequate information, the reliable operation of the station is jeopardized. A Data Logging system is to be installed to provide this critical recording of events and data thereby increasing the cost by $2.4 million.

c. The Runner replacement contract has been amended to include the supply of tools and custom work equipment ($6.0 million) and rehabilitation of the generator windings ($2 million) which were offset by a reduction in allowance for esculation ($10.5 million), when the contract was renegotiated to a lump sum contract, thereby decreasing the contract cost by $1.1 million.

d. The original scope of of BUREC services was for engineering advisory services. The BUREC scope of services has since been expanded to include engineering, engineering administration and construction monitoring services in support of EEA thereby increasing the cost by $4.2 million.

e. An allowance for contingencies, both price and physical, that could be encountered over the next five years equivalent to approximately eight percent of the project costs, thereby increasing the cost by $5 million.

1.11 During 1985, EEA found that the trash racks, emergency and maintenance barriers (gates) were badly deteriorated with many of the emergency and maintenance gates on the verge of being inoperable. Following a cursory inspection of the racks and gates, EEA concluded that work to rehabilitate these structures could require approximately $5 million.

1.12 In late February 1986, following receipt of bids for the 500 KV protective relay replacement, it became evident that authorized funds for the project would not be sufficient to permit carrying out the full range of planned activities. Based on current cost estimates, the total foreign exchange cost of the planned rehabilitation and modernizatiuon was estimated to be $125 million, an increase of $25 million over the 1982 authorization.

1.13 On March 31, 1986 Amendment No. 1 to the Grant Agreement was signed providing the second and final increment of $15 million in the $100 million authorization. A comparison of foreign exchange requirements setforth in the 1982 Authorization and the 1986 estimate are presented in Table I-1.

TABLE I-1

COMPARISON OF FOREIGN EXCHANGE COST ESTIMATES
(U.S. $ - Millions)

	1982 Authorization	1986 Estimate	Additional Funding Required
Engineering Advisor Services	$ 3.6	$ 7.8	$ 4.2
Runner Replacement	$82.0	$80.9	$(1.1)
Protective Relay Replacement	$ 3.3	$12.8	$ 9.5
Circuit Breaker Replacement	$ 8.5	$ 8.5	$ -
Instrumentation Modernization	$ 2.4	$ 4.8	$ 2.4
Gate Rehabilitation	-	$ 5.0	$ 5.0
Contingency	$ 0.2	$ 5.2	$ 5.0
Total	$100.0	$125.0	$25.0

Note: Allowance for contingency is 4.3% of 1986 Estimate.

1.14 On October 15, 1986, in response to a request for additional funding, EEA was advised that AID funds for FY-87 were fully programed and suggested that EEA present to MPIC the need for additional funds to finance the balance of rehabilitation and modernization work at the High Dam.

1.15 In early 1987 the BUREC inspected the gates and confirmed their deteriorated condition. BUREC's preliminary cost estimate is $15 million. This estimate is based on inspection of the trash racks and gates. An inspection of embedded guides and rails below water will be required to determine the full extent of the rehabilitation. Based on this cost estimate, the total foreign exchange cost of the planned rehabilitation and modernization is now estimated to be $140 million, an increase of $40 million over the current authorization. A comparison of foreign exchange requriements from the 1986 authorization and the 1987 estimate are presented in Table I-2.

Table I-2

COMPARISON OF FOREIGN EXCHANGE COST ESTIMATES
(U.S. $ - Millions)

	1986 Authorization	1987 Estimate	Additional Funding Required
Engineering Advisor Services	$5.7	$7.8	$2.1
Runner Replacement	$80.9	$80.9	-
Protective Relay Replacement	$12.8	$12.8	-
Circuit Breaker Replacement	-	$8.5	$8.5
Instrument Modernization	-	$4.8	$4.8
Gate Rehabilitation	-	$15.0	$15.0
Contingency and Audit	$0.6	$10.2	$9.6
Total	$100.0	$140.0	$40.0

Note: Allowance for contingency is 7.9% of 1987 Estimate

1.16 Section 3.2 of the Grant Agreement requires that the GOE provide, or cause to be provided, all funds, in addition to the Grant, and all other resources required to carry out the Project. While the GOE recognizes and accepts this requirement, financially it is unable to comply with the requirement on a timely basis. Consequently, the GOE has requested that AID increase the grant for the High Dam Rehabilitation/Modernization Project by $40 million.

1.17 All local currency needs, forecast at LE 37 million, will be provided by the GOE. In line with standard EEA practice under AID grants, these LE will be provided through a letter of credit mechanism; thus the Host Country's contribution will be readily ascertainable and recently tightened AID policy in this regard will be satisfied. Similary, regarding recently tightened AID policy, any salary incentives or supplements as EEA may choose to pay its employees under this Project Amendment would be from its own resources as opposed to AID funds or the Special Account; an Implementation Letter will so state.

II PROJECT DESCRIPTION

A. Purpose:

2.01 The purpose of the project is to provide improved reliability and economy of operation of the Aswan High Dam Hydroelectric Power Station and the 500KV transmission circuits which transmit energy from the High Dam to load centers in Cairo and the Nile Delta.

B. Project Description:

2.02 U.S. Contractors will: design, manufacture, replace and test 1) Francis turbine runners; 2) 500 KV circuit breakers; 3) transmission line and bus protective relaying; 4) control instrumentation; 5) and will rehabilitate water passages, trash racks and operating, maintenance and emergency gates; all associated with the twelve (12) hydro-turbine generators. Each contractor will provide necessary related technical assistance and training during manufacturing, rehabilitation and modernization of the facilities. The U.S. Department of Interior, Bureau of Reclamation will provide technical assistance during manufacturing and supervision during installation, testing and start-up in Egypt.

2.03 The additional $40 million in AID Grant assistance will finance:

a. The foreign exchange costs of additional engineering advisory services.

b. The foreign exchange costs for the rehabilitation of the trash racks, inlet, emergency and discharge gates, associated with each hydro turbine.

c. The foreign exchange costs for the design, manufacture, shipment, installation, training of EEA personnel and commissioning of replacement 500KV circuit breakers at the High Dam Hydroelectric Power Station.

d. The foreign exchange costs for the design, manufacture, shipment, installation, training of EEA personnel and commissioning of replacement instrumentation and a data logging system in the High Dam Hydroelectric Power Station.

e. Provide for contingencies in all foreign exchange funded contracts.

2.04 The 500KV circuit breakers, control instrumentation and data logging system will be state-of-the-art designs which will permit fault detection and interruption substantially faster than provided by the present apparatus and controls and will provide the station staff with accurate and timely operating data upon which to base operating decisions.

2.05 The intake, emergency and discharge gates will be rehabilitated so that when the gates are in place, they will prevent water from leaking around the seals. The operating mechanism and guide rails will be refurbished so that the gates can be operated reliably.

C. Project Cost Estimate:

2.06 The project cost estimate (excluding in-kind contributions) has been prepared by BUREC and is based on contract costs for the runner and protective relay replacements and cost estimates for BUREC engineering advisory services, circuit breaker and instrumentation replacement and intake, emergency and draft tube gate rehabilitation.

2.07 The project cost estimate is summerized in Table II - 1.

TABLE II - 1

SUMMARY OF COSTS
(U.S. $ and LE - Thousands)

	Foreign	Local
Engineering Advisory Services	$ 7,800	LE 600
Runner Replacement	80,902	LE 17,000
500KV Protective Relay System Replacement	12,800	LE 1,600
500KV Circuit Breaker Replacement	8,500	LE 1,000
Gate Rehabilitation	15,000	LE 2,500
Station Instrumentation Modernization	4,800	LE 1,000
Audit	$ 100	---
Contingency	$ 10,098	LE 2,500
Total Project Cost	$140,000	LE 26,200

2.08 In addition to the Local Currency cost shown in Table II-1, the GOE will provide in the form of in-kind contributions over the life of the project in excess of LE 2,180,000. The in-kind contributions include captial goods, counterpart personnel costs, services, administrative costs, fair market value of land contributed and other similar costs. EEA is providing: office space in Cairo and Aswan for the BUREC; office space for Voith; housing for BUREC staff in Aswan, land for Voith staff housing in Aswan (Voith providing housing); use of the machine shop and turbine hall crane in the power station; storage space for equipment and materials in the power station; and in-country transportation. EEA's in-kind contribution is summarized in Table II-2.

TABLE II-2

IN-KIND CONTRIBUTION
(LE in Thousand)

Housing in Aswan for BUREC - 4 units	LE 1,000
Office space in Aswan for BUREC (400 sq feet)	LE 150
Office space in Aswan for Voith (500 sq ft)	LE 120
Office space in Cairo for BUREC (400 sq ft)	LE 100
Use of plant machine shop and Turbine Hall crane	LE 100
Land contributed for Voith housing (18,000 sq ft)	LE 300
Storage Space (1,000 sq ft)	LE 250
In-Country Transportation	LE 160
Total	LE 2,180

D. Project Design:

2.09 A logical frame work showing the Project design is included in Annex F.

E. Section 611 (a) Requirements:

2.10 It is the conclusion of the Project Committee that the requirements of Section 611 (a) of the Foreign Assistance Act of 1961, as amended, have been satisfied. The project is based on sound engineering analysis performed by the U.S. Department of Interior, Bureau of Reclamation. The Mission has reviewed the plans and finds them to be acceptable and has reviewed the cost estimates and finds them reasonably firm within the meaning of the statutory requirements.

III. PROJECT IMPLEMENTATION AND PROCUREMENT

A. Implementing Agency:

3.01 EEA will continue to have prime responsibility for overall management of the project and for providing direction to the engineering advisor and turnkey contractors.

B. Project Procurement Plan:

3.02 The project as amended will follow the procurement plan set forth in the January 1982 Project Paper. This plan included the use of "turnkey" contracting (single firm responsible for design, supply, installation, testing and placing in operation) for the major equipment replacements and provided for negotiation with Allis-Chalmers, on a non - competitive basis, for the replacement of the Francis turbine runners and the rehabilitation of generators and water passages.

3.03 The project, as authorized in March, 1982, (Annex E), authorized EEA to utilize the BUREC for engineering advisory services for the project. These services are being provided under a PASA financed from the project. The additional services to be provided by the BUREC for the amended project are consistent with the scope of BUREC engineering advisory services approved in 1982 and subsequently amended.

3.04 AID's use of other Federal agencies through PASA's is governed by OMB Circular A-76. OMB Circular A-76 precludes the use of services or products of one Federal agency by another unless: there is no satisfactory source available from the private sector. Exceptions are provided under Section 621(a) of the Foreign Assistance Act for technical assistance activities. The requirement of Section 621(a) that facilities of Federal agencies not be competitive with private enterprise unless their services are particularly or uniquely suitable, i.e., the Federal agency must have a clear and substantial superiority to private enterprise either on technical or cost grounds to the extent that private enterprise is not in the competitive range when compared with the Federal agency.

3.05 The BUREC is uniquely qualified to assist the EEA as the Engineering Advisor for the additional activities. The BUREC is responsible for the design, construction, operation and maintenance of hydro-electric power stations and high voltage transmission systems in the United States. The BUREC: has extensive experience in hydro electric power station rehabilitation and facility upgrading; maintains a staff of experienced inspectors near the manufacturing sites in the U.S. to monitor manufacturing and factory testing; is familiar with industry, United States (ANSI)

and European (IEC) standards, practices and proceedures for the design, manufacture and testing of this type of equipment being financed by this grant and has proven capability to act as the contract administrator in implementing the Project. BUREC would not be competing with private enterprise in carrying out its contemplated role in the overall project since there is at present no U.S. private sector supplier capable of performing the full range of functions required under this activity. Therefore, we recommend an exception to the provisions of OMB Circular A-76 and that EEA be authorized to negotiate with BUREC for an extension of their services.

3.06 The BUREC staff in Egypt, working with EEA, consists of a Project Manager and an electrical engineer stationed in Cairo and two engineers (mechanical and electrical) stationed in Aswan. This staff is supplemented on occation by BUREC-Denver staff on TDY assignments. The Project Manager besides co-ordinating and advising EEA on a daily basis on the project spends approximately 30 percent of his time in Aswan. The electrical engineer assigned to Cairo is responsible for coordinating, with EEA, the protective relaying design reviews and approvals and will oversee the protective relaying installation, testing and commissiong at the Cairo and Samalot substations and will then move to Nag Hamadi and Aswan for installtion, testing and commissioning of the installations at these substations.

3.07 Procurement of circuit breakers, instrumentation and gate rehabilitation will be in accordance with AID competitive host country contracting procedures specified in AID Handbook 11, Chapter 2 and 3.

C. Contracting Procedure:

3.08 USAID has had extensive prior experience with EEA's contracting capabilities on this project and on a number of other projects and has found them to be effective and satisfactory even if at times they appear cumbersome and time consuming. EEA competitively selected and awarded a "Turnkey" contract for the 500KV protective relay replacement. EEA will utilize "Turnkey" contracts for the replacement of the circuit breakers, instrumentation (including a data logging system) and rehabilitation of the trash racks and gates. EEA will utilize Host Country contracts. USAID will review all contracts to assure compliance with AID regulations and to verify the reasonableness of the contract cost.

D. AID Componentry Requirements:

3.09 All commodities procured with the additional funds to be provided in this amendment will comply with standard AID componentry rules, i.e. each "commodity" must - to qualify for AID funding - contain at least 50 percent (on a cost basis) U.S. source/origin components.

3.10 To satisfy AID's componentry rules, it is anticipated that each turnkey contract will identify the major items of equipment and services. Each contract will have an appendix, listing the commodities. The contract shall state that AID's componentry rules will apply separately to each item of major equipment or service.

E. Implementation Schedule:

3.11 The project was authorized by AID/W on March 29, 1982.

3.12 The Project Grant Agreement was executed by representatives of the government of the United States and the Arab Republic of Egypt on April 12, 1982.

3.13 On August 23, 1982, the Conditions Precedent to Disbursement were satisfied.

3.14 The contract for the turbine runner replacement was signed on June 3, 1982 and funds were obligated on August 23, 1982.

3.15 A Participating Agency Services Agreement for BUREC engineering advisory services was signed on September 7, 1982.

3.16 The design of the hydro-turbine runners was approved in October, 1982 and fabrication of the runners began.

3.17 Hydroturbine-generators 9 and 10 were removed from service in February, 1985 for runner replacement. The replacement was completed and the units returned to operation in May, 1986.

3.18 Hydroturbine-generators 1 and 2 were removed from service in November, 1986 for runner replacement. The replacement is expected to be completed and the units returned to service in mid August, 1987.

3.19 The contract for the 500KV protective relay system replacement was signed on May 25, 1987. Replacement should be completed by early 1990, 33 months from the effective date of the contract.

3.20 By late August, 1987 the Second Amendment to the Project Authorization is expected to be approved.

3.21 By September 30, 1987 the Second Amendment to the Project Grant Agreement should be executed by representatives of the governments of the United States and the Arab Republic of Egypt.

3.22 By November 30, 1987 all Requirements Precedent to Disbursement for funds being added to the project contained in the Second Amendment to the Grant Agreement should be satisfied by the GOE and the additional funds could be available for project commitments.

3.23 By January 1989 the contract for the replacement of the 500KV circuit breakers will be signed.

3.24 By March 1989 two contracts for the replacement and upgrading of instrumentation will be signed.

3.25 By December 1989 the contract for the rehabilitation of the trash racks and gates will be signed.

3.26 By December 31, 1991 it is anticipated that all replacement and rehabilitation work will have been completed and EEA will have provided provisional acceptance of the new equipment or rehabilitated facilities.

3.27 By April 12, 1992 all goods and services provided under the project will be complete.

3.28 By January 12,1993 final payments would be made to all contractors.

F. AID Financing Procedures:

3.29 The U.S. dollar costs for procurements of services and materials financed by this Grant amendment will be financed by Direct Letters of Commitment (L/Comm). The BUREC has been financed by a Participating Agency Service Agreement (PASA). This PASA will be amended for the circuit breaker and instrumentation replacement and gate rehabilitation. Upon receipt of executed contracts, acceptable to AID, and a request from EEA to issue Letters of Commitment, AID will issue Direct L/Comm to the contractors. EEA will issue appropriate Egyptian Pound Letters of Credit.

G. Terminal Dates:

3.30 Requirements Precedent. The terminal date for meeting the Requirements Precedent to the Disbursement for the additional funds provided by this agreement will be 60 days from the signing of the Second Amendment to the Grant Agreement.

3.31 Project Assistance Completion Date. The project assistance completion date is April 12, 1992

3.32 Terminal Disbursement Date. The terminal disbursement date will be January 12, 1993, nine months after completion of all services, to allow for final payments.

H. Monitoring and Evaluation:

3.33 The monitoring and evaluation plans contained in Section IX of the January 1982 Project Paper have been implemented. These plans have been modified to a minor extent to reflect the actual implementation.

3.34 Throughout the life of the project, the BUREC will monitor the project, bringing all the routine problems, together with recommended solutions, to the attention of EEA and USAID in the form of monthly progress reports. Each contractor will submit monthly progress reports stating progress conformance with the project schedule. During construction, frequent progress review sessions will be held with EEA and the BUREC to closely monitor project progress. More serious problems, those requiring immediate action, will be monitored by members of the USAID Project Committee through frequent and timely visits to the project sites and meetings with EEA principals and site personnel.

3.35 It is anticipated that all project evaluation activities will be carried out as an integral and regular part of the Mission's ongoing monitoring and management activities described above. Project implementation will follow normally accepted management and evaluation practices currently being used worldwide for engineeringand construction projects of a similar nature and size. Execution of these procedures should adequately assure an early identification of implementation problems and timely management actions to make necessary design changes and achieve the project purpose. No special evaluations or studies requiring the use of project funds are contemplated at this time.

3.36 The engineering advisor and contractor progress reports, discussed above, should provide useful information on the provision of inputs and outputs and for measuring purpose and goal level achievement. In addition, the progress review meetings should permit EEA and USAID to carefully examine contractor progress and compare actual progress against anticipated progress. In this manner, any delays from the planned schedule should be quickly identified, possible impacts discussed and solution approaches explored. At least once every six months it is expected that senior level officials from EEA, BUREC (EEA's engineering advisor) the various contractor firms and USAID will meet to review overall progress and discuss major implementation problems.

I. Audit:

3.37 Funds in the amount of $100,000 have been provided for an external audit of cost reimbursable Host Country contracts if needed.

IV. TECHNICAL ANALYSIS

A. General:

4.01 The Aswan High Dam and Hydroelectric Power Station complex is located in the Aswan Governorate, some 16km south of the city of Aswan and approximately 6km south of the first catract of the Nile River. The hydro complex includes the dam, emergency spillway on the west bank, and water passing structures and power station on the east bank.

B. Circuit Breakers, Instrumentation:

4.02 The present 500KV air-blast circuit breakers at the High Dam substation were designed and manufactured in the early 1960's and are now obsolete. The design of the operating mechanism results in inherently slow operation in opening to isolate faulty equipment and therefore restricts the amount of power that can be transferred over the transmission lines from Aswan to Cairo. Spare parts are no longer available to maintain the circuit breakers in useable condition. Circuit breakers available for use in the electric utility industry utilize operating mechanisms with much faster operating times and utilize sulfur hexafloride (SF-6) gas for insulation of the mechanism that interrupts the flow of electricity. These SF-6 circuit breakers are the predominate type of switching utilized on very high voltage transmission system throughout the world.

4.03 The instrumentation at the High Dam Hydroelectric Power Station utilizes electro-mechanical devices manufactured in the early 1960's, many of which were obsolete when installed or are now obsolete. Numerous devices are either inoperable and spare parts are no longer available or require continual maintenance to maintain their accuracy. In some instances, instrumentation essential for proper management of the station facilities was not provided. The instrumentation to be installed will be a mix of digital and analog devices which will facilitate the observation, by operating staff, of information being presented and provide sufficient information from which operating decisions may be made.

4.04 A more detailed discussion of the circuit breaker, instrumentation, turbine runner and protective relaying problems are presented in Section IV of the January, 1982 Project Paper.

C. Description of the Intake and Discharge Barriers (Gates):

4.05 There are four different barriers that comprise each units hydraulic barrier system. These structures, in the order of water passage, are described below:

4.06 Three barriers are mounted in the intake structure:

a. Trash racks:

The trash racks, installed in vertical slots in the intake trashrack structures, consist of vertical bars overlaying a frame, with a spacing of 200mm which forms a large screen designed to prevent the entry of large water borne oversize trash. Each trash rack is 34.6 meters in height, 10.5 meters wide and is composed of 5 screen units, each 6 meters high which are stacked one above the other, and a top unit 4.2 meters high (see Annex G, page 1 of 4). There are two trash racks per inlet for a total of 12 trash racks and two spare trash racks. The trash racks are suspended from the operating level of the intake structure by a 28 meter long hanger consisting of 4 segments connected by coupling pins. Each assembled trash rack weighs 100 tons. These trash racks are assembled, lowered and raised by a 125 ton gantry crane on the intake structure operating level. Guides on the sides of the trash rack provide lateral guidance for the trash rack as it is being lowered into the trash rack slots on the intake structure.

b. Intake Maintenance (Repair) Gates

The intake maintenance gates are reinforced and braced steel plates that are lowered into position to seal the intake tunnel after water flow has been stopped. While the gates are designed for a head of 59 meters, they are not designed to interrupt water flow.

Each Maintenance Gate when assembled is 24.79 meters high, 5.6 meters wide and 1.07 meters in depth and is composed of three 3.3 meter sections, three 3.8 meter sections and a top section 3.49 meters high which are stacked, one above the other, as they are being lowered into position (see Annex G, page 3 of 4). When fully assembled, the gate weighs 123 tons. There are two gates per inlet tunnel. The gates are suspended from the operating level of the intake structure by a 37 meter long hanger consisting of 5 segments connected by coupling pins. These gates are assembled, lowered and raised by the 125 ton gantry crane on the intake structure operating level. Guides in the sides of the gate provide lateral guidance for the gate as it is being lowered into its gate slot. Rubber seals are mounted like a picture frame

on the intake tunnel side of gate and bear against metal seats which surround the intake tunnel entrance and between mating sections of the gates. Since these gates are used only during unit or tunnel maintenance, there are only 24 sections, sufficient for 1.5 tunnels. Ten hours are required to assembly the stacked gate sections and lower into place.

c. Emergency/Operating Main Gates:

The emergency/operating gates are reinforced and braced steel box plate barriers with fixed wheels that are lowered either electrically in 13 minutes or by gravity in six minutes to seal the water intake for their respective intake tunnel. These gates are provided for emergency closure of the intake in case of damage to the intake tunnels or turbine wicket gates, and also to permit unwatering of the intake tunnels for inspection and maintenance. Normally, the gates will close only after flow through the intake has been stopped by closing the hydroturbine wicket gates. However, in an emergency the gate may be closed with water, at full reservoir head (59 meters), flowing through the intake tunnel at 92,000 gallons/second (346 cubic meters/second).

Each gate, weighing 231 tons, is 20.4 meters high, and is composed of six 3.4 meter high sections 5.25 meters wide and 0.95 meters thick which are stacked one above the other, forming the gate 20.4 meters high (see Annex G, page 2 of 4). There are two gates for each intake tunnel plus two spare emergency gates. The gates are suspended from their 300 ton motor driven cable lifting winches, located on the operating level of the intake structure, by a 10 meter long hanger. Twelve (12) wheels on each side of the gates carry the waterload to the tracks embedded in the intake gate slots. Guides on the wheels provide lateral guidance for the gate. Rubber seals are mounted like a picture frame on the intake tunnel side of the gate and bear against metal seats which surround the intake tunnel opening. Seals are also mounted between mating sections of the gate.

4.07 A single barrier is mounted in the discharge structure:

Discharge Maintenance Gates (Stop Logs):

The intake Maintenance Gates are reinforced and braced steel plates that are lowered into position to seal the intake tunnel after water flow has been stopped in the event that it is necessary to unwater the intake tunnels for inspection and maintenance of either equipment or structures. While the gates are designed for a head of 26 meters, they are not designed to interrupt water flow. Each gate consists

of a number of sections, each 4.65 meters high, 9.6 meters wide and 1.2 meters in depth, which are stacked, one above the other, as they are lowered into position (see Annex G, page 4 of 4). A gate to cover only a draft tube contains 2 sections. A gate to cover a single unit draft tube and the by pass tunnel contains 6 sections. To seal both draft tubes and the by pass tunnel, a total of eight sections are required, one gate 8 meters high and the other gate 24 meters high. The gates are assembled, lowered and raised by a 75 ton gantry crane on the discharge structure operating level. Guides on the sides of the gate provide lateral guidance for the gate as it is being lowered into its gate slot. Rubber seals are mounted between the mating gate sections and around the circumference of the inside surface of the gate. Since these gates are used only during unit or tunnel maintenance, EEA has only 12 gate sections, sufficient for only 1.5 units.

4.08 A 125 ton gantry crane is installed on rails on top of the intake structure and is used for the installation and maintenance of the trash racks, maintenance and emergency gates. A 75 ton gantry crane is installed on rails on top of the discharge structure and is used for the installation and maintenance of the maintenance gates. Both cranes are outdoor, cab-operated, electric gantry cranes with a trolley supporting the hoists.

D. The Gate Problem:

4.09 Runner maintenance over the past several years (1981 - 1984) and runner replacement which began in 1985 have required operation of the numerous hydraulic barriers (gates) which control the flow of water through the intake tunnels and discharge tunnels.

4.10 The trash racks and gates are badly corroded as a result of operating procedures to remove algae from the gates and trash from the racks. This cleaning has removed the protective coating which was of low quality. EEA did not have paint to withstand immersion. The emergency and maintenance gate rubber gaskets are deteriorated and do not seal when the gates are in place. Many emergency (main) gate guide wheel bearings are worn and do not provide lateral positioning of the gate. A number of the 300 ton cable winch mechanism bearings are frozen and many of the pulleys on the cable lowering mechanism are frozen to their shafts. The embedded channels, and guides rails, which guide the gates into position, are believed to be deteriorated and in the past have caused gates to jam when being raised or lowered. Many of the sealing surfaces upon which the rubber gaskets seat may be corroded preventing an effective seal.

E. Solution to the Gate Problem:

4.11 An underwater inspection by television or by diver will be required to ascertain the full extent of repairs to the embedded channels and guide rails that will be required to assure reliable operation of the gates and sealing of the tunnel openings. The 125 ton gantry crane will be inspected, serviced as required and tested for full capacity operation prior to use. The twelve (12) 300 ton cable winches and lowering mechanisms will be dismantled; bearings, gears, bushings and

other moving parts will be cleaned and machined as required or replaced and then reassembled. The fixed wheel bearings will be dismatled, bearings, bushings and other moving parts will be cleaned and machined as required, then reassembled. The trash racks and gates will be sand blasted to remove corrosion, structural bracing will be strengthened by welding in replacement stiffeners as required and then coated with a coal tar epoxy paint. The deteriorated seals and seal retaining hardware will be replaced with synthetic seals and stainless steel hardware. The trash rack and gate slots will be cleaned and repaired as found to be necessary.

F. Training Program:

4.12 Formal training programs will be conducted as a part of the project. Foreign exchange costs will be financed from project funds and local costs, including overseas air transportation, will be provided by the EEA. The contractors will be responsible for conducting the formal training programs at the contractor's and/or subcontractor's plants and wherever possible on the equipment being supplied.

4.13 It is presently anticipated that 74 High Dam and EEA staff will receive a minimum of 122 person-months of formal training.

a. From funds previously authorized for this project:

(1) Ten High Dam engineers and technicians were trained for a one month period at the Woodward Governor Company plant. This training included both theoretical and on-the-job training in the design, testing, maintenance and operation of the governor equipment.

(2) Ten High Dam engineers and technicians were trained for a one month period at the Allis-Chalmers Hydro Turbine Division plant. This training included both theoretical and on-the-job training in runner design, model testing, manufacturing processes, operating and maintenance procedures for the runners and hydro-turbine generators.

(3) Twenty EEA engineers and technicians will receive training for a 14 week period at the facilities of the contractor providing the protective relaying. This training will cover operation and maintenance procedures for the protective relaying, sequential event recorders, automatic fault recorders, fault location devices and power line carrier communications equipment being furnished.

b. From funds to be provided under this amendment:

(1) Ten engineers and technicians will receive training for a one month period at the facilities of the circuit breaker manufacturer. This training will cover the operation and maintenance of the circuit breakers being furnished.

(2) Twenty High Dam engineers and technicians will receive training for a one month period at the facilities of the contractor providing the electrical instrumentation and devices. The training will cover the operation and maintenance of the electrical equipment and accessories to modernize the stations instrumentation.

(3) Four High Dam engineers and/or technicians will receive one week of factory training to be followed by one week of on-site training following the completion of the installation tests for the Data Acquisition System. The training will cover both hardware and software operations, troubleshooting and maintenance for the equipment being furnished.

4.14 The training programs should result in an operating and maintenance staff at the High Dam possessing enhanced capabilities to operate and maintain the hydro-turbine generators, circuit breakers, relays and control instrumentation.

G. Conclusion:

4.15 The rehabilitation and modernization of the High Dam Hydroelectric Power Station and associated 500KV transmission lines will utilize technology which is widely and successfully used in the electric utility industry. The design of the equipment being provided and the rehabilitation of existing facilities is based on this knowledge and experience. Given the many years of EEA operating experience with this hydro generation facility and the 500KV transmission system and the training being provided, USAID believes the EEA will continue to operate the modernized and upgraded plant and transmission system effectively. Accordingly, the project design as amended is determined to be technically appropriate and cost effective.

V. ECONOMIC ANALYSIS

A. Analysis:

5.01 The proposed $40 million project amendment provides for the rehabilitation of defective, worn or obsolete equipment and facilities needed to assure continued operation of a generating system having a replacement value in excess of $1.9 billion. Under normal water supply conditions, the Aswan High Dam Hydroelectric Power Station produces more than 8 billion KWH per annum. Thus the proposed expenditure is dwarfed by the overall importance of the dam.

5.02 Under these circumstances, it makes little sense to conduct a standard economic analysis of the project. The overwhelming value of 8 billion KWH of electrical energy per year (equivalent to nearly $500 million in revenue per year using the unsubsidized cost of fuel) in relation to an expenditure of $40 million would lead to an inflated relation between benefits and costs, thus serving to justify the proposed expenditure. Since the project focuses on the rehabilitation and maintenance of existing assets instead of supporting the expansion of existing assets, it is not surprising that the economic returns would appear so high - this is because rehabilitation and maintenance almost invariably appear justified in economic terms. For this reason, economic analysis is rarely used to justify such expenditures. Standard economic analysis would only be usefully applied to rehabilitation or maintenance costs if the benefits to be derived from these expenditures appeared so low as to call into question the economic viability of continuing to maintain the productive status of the original assets. Since the Aswan High Dam is a highly productive asset, standard economic analysis would easily serve to jusitfy rehabilitation and maintenance expenditures.

5.03 However, it is important that the maintenance and rehabilitation expenditures correspond to the least cost options available. Engineering analyses indicate that, of the various alternatives available, those recommended in the technical components of this document are the least cost alternative. The available alternatives range from the total replacement of trash racks, gates and their embedded components to the rehabilitation of individual gates on an as-needed basis. Those alternatives involving extensive repair or replacement of embedded components would require extensive piling around the intake structure which, in turn, would call for inordinately high costs for piling installation as well as implying substantial reductions in electric's energy production as the corresponding pair of generators are taken out of production.

5.04 Similarly, replacement of the slow operating relays and circuit breakers and obsolete instrumentation with state-of-the-art relays and circuit breakers and reliable instrumentation has also been found to be a least cost alternative. Since the spare parts for the original equipment are no longer available to EEA, the design and fabrication of custom parts of the type and quality judged necessary to meet any reasonable contingency would not be cost effective. Allowing the equipment to deteriorate further than has already ocurred due to the lack of spare parts would entail running the risk of extensive system failure in the event that either the relays or circuit breakers failed to operate correctly or the operators were misinformed by faulty instrumentation.

B. Conclusion:

5.05 Of all the alternatives available to EEA for rehabilitating the High Dam Hydroelectric Power Station, engineering analyses found the alternate presented in this document to be the least cost solution. Furthermore, since the proposed rehabilitation and maintenance expenditures outlined in this document are vital to the continuing usefulness of the huge electricity generation system installed at the High Dam, the benefits of the project warrant the expenditures.

FINANCIAL ANALYSIS

A. General

6.01 EEA is an operational organization within the Ministry of Electricity and Energy. EEA is bound by certain government standards, practices and traditions.

B. Accounting System:

6.02 The GOE applies a Standardized Accounting System (SAS) to all operations of the government. The SAS is administered by the Central Auditing Organization together with the Ministry of Finance. The SAS is uniform for all government organizations regardless of their function.

6.03 The capital development (investment) section of the budget is prepared through coordination of plans of EEA's technical department with the national Five-Year Plan as controlled by the Ministry of Planning. The GOE's approval and inclusion of an EEA project in the Five-Year Plan represents the GOE's agreement to commit funds over the five year period without prescribing specific amounts for each year of the plan.

6.04 The operation expense section of the budget is prepared by EEA's operating zones. Each zone forecasts operational and maintenance expenses which are then assembled into a comprehensive operational plan for the budget year. The Ministry's operational expense budget is then submitted to the Ministry of Finance.

6.05 The investment and operational expense budgets are assembled by the Ministry of Finanace and after determining the impact of the combined budget on the national economy and after making any necessary adjustments, the budget is submitted to the Cabinet for further review and approval.

C. Project Audits Completed:

6.06 The Office of the Inspector General for Audit, RIG/A/Cairo, has performed two functional audits of the Project as part of larger audits of a number of projects. The objectives of the audits was to:

a. evaluate the Missions procedures in monitoring the GOE's local currency and in-kind contributions and assess the adequacy of controls for the accounting of local currency and in-kind contributions.

b. determine how effectively project financed machinery and equipment are being utilized.

6.07 The audit of this Project revealed that while the High Dam Power Station staff had established detailed accounting records for project expenditures involving AID funds as well as local currency, there was no monitoring system to insure that the GOE's local currency and in-kind contributions were being made. The audit of the project showed that equipment and machinery financed by AID was being used effectively.

6.08 The Grant Agreement Amendment will contain a Requirement Precedent to Disbursement requiring that EEA establish and maintain accounting records of local currency and in-kind contributions to the Project. The Grant Agreement Amendment will also contain a Covenent that EEA will provide to USAID, quarterly, copies of the accounting records on local currency and in-kind contributions.

D. Assessment of EEA Contracting and Voucher Examination Capabilities:

6.09 The Financial Management Division (FM/FA) have completed an assessment of EEA's contracting and voucher examination capabilities. Their assessment has found that throughout the implementation of the Project EEA has performed well in: the review of project designs, contract documents and IFB's; approval and award of contracts; overall management of contractor performance. The strengths of EEA's contracting and voucher examination system are good segregation of duties, good documentation of decisions and a thorough system of approvals. These same strengths however, sometimes contribute to slowness and delays in contracting actions. Based on FM/FA's review and USAID's extensive prior experience with EEA's contracting capabilities, it is our opinion that EEA's contracting capabilities and voucher examination procedures are satisfactory. It is our opinion that EEA is well equipped to undertake the additional activities proposed by this Project Amendment.

E. Audit Coverage:

6.10 Funds provided by this project will be used to finance a cost reimbursable PASA with the BUREC and five lump sum, fixed price Host Country contracts with U.S. firms. These contracts are summarized in Table VI-1.

TABLE VI-1

Assessment of The Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station Project
Methods of Implementation and Financing

In accordance with the requirements of the Sixteen Payment Verification Policy Statements the following table illustrates the methods of implementation and financing for AID funds as planned in the Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station Project Paper.

ACTIVITY	METHOD OF IMPLEMENTATION	Type of Contract	METHOD OF FINANCING	APPROXIMATE COST ($000)	HC OR AID CONTRACT	HOST COUNTRY IMPLEMENTING AGENCY
1. Engineering Advisory Services	PASA	Fixed Rate	Direct Payment	$ 7,800*	AID	
2. Runner Replacement	Host Country Contract	Lump Sum	Direct L/Comm	$ 81,000***	HC	EEA
3. Relay Replacement	Host Country Contract	Lump Sum	Direct L/Comm	$ 14,000*	HC	EEA
4. Circuit Breaker Replacement	Host Country Contract	Lump Sum	Direct L/Comm	$ 9,900**	HC	EEA
5. Instrumentation Replacement	Host Country Contract	Lump Sum	Direct L/Comm	$ 7,500**	HC	EEA
6. Gate Rehabilitation	Host Country Contract	Lump Sum	Direct L/Comm	$ 19,700**	HC	EEA
7. Audit	AID Direct	Fixed Price	Direct Payment	$ 100**	AID	

* Partial funding from funds added by this amendment
** Fully funded from funds added by this amendment
*** Fully funded from previous obligations

The justification for using Direct L/Comms is that the host country does not have the financial resources to make payment and seek daily reimbursement from AID.

6.11 Since four of these contracts are lump sum, competitively bid, fixed price contracts, they are not subject to audit of costs except for any cost-reimbursable items. The fifth contract for runner replacement was a negotiated contract and is subject to audit of costs. All contracts however, are subject to audit for compliance with other AID regulations and therefore a small amount of audit funds are allocated for this purpose. The project will also utilize engineering advisory services provided by the BUREC under a PASA which is not subject to audit. The Project Paper's budget includes approximately $100,000 to cover the estimated auditing costs of these contracts. Audit funds budgeted by activity are summarized in Table VI-2.

TABLE VI-2

UTILIZATION OF AUDIT FUNDS

Activity	Number of Contracts	Type of Contract	Estimated Contract Amount* (Thousands)	Audit Funds Budgeted
Runner Replacement	1	HC-FP	$81,000	$40,000
Relay Replacement	1	HC-FP	$14,000	$20,000
Breaker Replacement	1	HC-FP	$10,000	$10,000
Instrument Replacement	2	HC-FP	$ 8,000	$10,000
Gate Rehabilitation	1	HC-FP	$19,000	$20,000

* Contingency fund distributed over all contracts

F. Sources of Project Funding:

6.12 The sources of Project financing previously approved and to be authorized by this amendment are summarized in Table VI-3.

TABLE VI-3

SOURCES OF PROJECT FINANCING
(U.S. $ and LE - Millions)

	1982 Authorization		To Be Authorized		TOTAL	
	US $	LE	US $	LE	US $	LE
Estimate Cost	100.0	20.2	40.0	6.0	140.0	26.2
Funds Provided						
AID	100.0		40.0		140.0	
EEA		20.2		6.0		26.2
Total	100.0	20.2	40.0	6.0	140.0	26.2

6.13 The U.S. dollar cost of the project will be provided to the GOE as a Grant with the amount reloaned to the EEA. The Grant Agreement Amendment will contain a Requirement Precedent to Disbursement requiring that the funds made available by AID to the GOE will be loaned to the EEA.

6.14 The Grant Agreement Amendment will contain a Requirement Precedent to Disbursement requiring evidence that local currency financing for the amended project has been budgeted by the GOE and will be available for expenditure by EEA on the project.

G. Utilization of Project Funds:

6.15 The proposed $40 million AID grant together with the funds previously obligated in 1982 and 1986, will be used to finance additional engineering advisory services, replacement of major items of equipment (including spare parts) rehabilitation of major plant facilities and contingencies required to complete the project.

6.16 The utilization of Project funds is summarized in Table VI-4

TABLE VI-4

UTILIZATION OF AID FUNDS
(US $ - Million)

	Previously Obligated	To Be Obligated	TOTAL
Engineering Advisory Services	$ 5.7	$ 2.1	$ 7.8
Runner Replacement	$ 80.9	-	$ 80.9
Relay Replacement	$ 12.8	-	$ 12.8
Circuit Breaker Replacement	-	$ 8.5	$ 8.5
Instrument Replacement	-	$ 4.8	$ 4.8
Gate Rehabilitation	-	$15.0	$ 15.0
Contract Audit		$ 0.1	$ 0.1
Contingency	$ 0.6	$ 9.5	$ 10.1
Total	$100.0	$40.0	$140.0

H. Disbursement Period:

6.17 Disbursement of the additional $40 million in AID funds for engineering advisory services, replacement of equipment and rehabilitation of facilities will extend over five years from the GOE's satisfaction of the Requirements Precedent until the completion of replacement and rehabilitation of the plant. The estimated disbursements over the implementation period are summarized in Table VI-5 below:

TABLE VI-5

DISBURSEMENT SCHEDULE

(U.S. $ - Millions)

Year	Disbursement
1988	$ 0.6
1989	$ 7.8
1990	$19.4
1991	$ 9.7
1992	$ 2.5
Total	$40.0

VII. SOCIAL ANALYSIS

A. Socio/cultural Feasibility:

7.01 The social and cultural impacts of the project, while limited will however be positive due to the potential reduction in equipment failure caused by defective and obsolete generating facilities. Equipment failure would have far reaching direct and indirect effects on all classes of electricity users since these failures would result in interruption in electricity supply. This project will indirectly result in the conservation of fuel and also relieve other obsolete generating facilities which are equally susceptible to failure. Of course, EEA is an operating utility and will use sufficient generating capacity to meet the demands of its customers.

7.02 As indicated in the January 1982 Project Paper, the most significant social impact of the project will result from preserving and extending the useful generating life of the major power station in Egypt which consumes no fuel and releases no pollutants since it harnesses the waters of the Nile River as they are being released from storage in Lake Nasser to meet the irrigation requirements of Egypt. Consequently, the project will present no social disruption to the surrounding communities.

B. Spread Effects:

7.03 The equipment being installed under the project is standard equipment, based on current technology, and found in many modern hydroelectric power stations and on modern high voltage transmission networks. Techniques being utilized to rehabilitate the existing facilities are based on sound engineering and proven materials. EEA's staff at the plant have successfully operated and maintained the station for 20 years and training which will be provided will build upon already existing knowledge and skills.

7.04 The replacement of equipment and rehabilitation of facilities will not require an expansion of the maintenance staff. Selected members of the maintenance staff will be trained to service the modern equipment and protective relay systmes.

C. Benefit Incidence:

7.05 As indicated in the January 1982 Project Paper, the project will attempt to maximize the use of the Egyptian laber force in both skilled and unskilled areas. EEA is seconding some 130 power station employees to work for the Egyptian subcontractor, under supervision of Voith, to carryout the replacement of the turbine runners an rehabilitation of the generators and water passages.

These employees are developing and sharpeing their skills and will continue for many years to provide EEA and the power station with high quality workmanship. The use of the seconded EEA staff has not required moving people from one area to another and as a result of incentive bonuses paid by the subcontractor, will enhance the economy of Aswan. A small number of technicians, necessary for the replacement of circuit breakers and protective relaying, will be assigned from Cairo.

7.05 EEA will not increase the current level of operating and maintenance staff at the High Dam or in its transmission protection group.

7.06 To the extent this project contributes to the continuity and efficiency of energy service to customers it will benefit all persons utilizing electrical energy from Egypt's Unified Power System.

D. Conclusion:

7.07 The design of the project as amended is compatible with the sociocultural environment in which it is to be introduced. The project should cause an adequate introduction in Egypt of modern hydroturbine design and manufacturing technology and modern power system protection procedures and techniques and the enhancement of construction skills to the EEA staff which should result in direct and indirect benefits being distributed throughout Egypt.

VIII. ENVIRONMENTAL ANALYSIS

A. Background:

8.01 The construction of the Aswan High Dam was politically motivated, and environmental studies were not conducted during Nasser's time. Now, a number of adverse environmental impacts are a matter of record. The Aswan High Dam has long been cited by environmentalists as an example of an environmental disaster. Unanticipated impacts of the dam include: killing of the sardine industry, the phenomenal growth of the water hyacinth weed, foundations damaged by high groundwater tables, and increasingly saline agricultural lands.

B. Anticipated Benefits:

8.02 The Aswan High Dam was designed for flood control and power generation. Benefits originally anticipated were: increased perennial irrigation of farmland, reclamation of desert land, and increased hydroelectric power. AID-financed project activities are rehabilitating the Aswan High Dam Hydroelectric Power Station with the main benefits being improved efficiency and thus greater energy output.

C. Environmental Issues:

8.03 In spite of a number of adverse environmental impacts associated with the construction of the High Dam, it remains a source of national pride and it is generally accepted that the benefits from the High Dam far outweigh any adverse impacts. The proposed activities will not alter the general nature of the High Dam and will not introduce any new environmental issues.

D. Recommended Environmental Plan of Action:

8.04 The High Dam was completed in 1970. Its impact on the environment is well known and have, in recent years, been the subject of numerous discussions and evaluations. No additional environmental studies are proposed as part of this project amendment.

E. Environmental Clearances:

8.05 The Bureau Environmental Coordinator has previously reviewed the project as proposed in the original Project Paper and determined that the proposed activities will not have significant adverse impacts on the environment. The Mission Environmental Officer has reviewed the Project Paper Amendment and has concluded that no additional environmental actions are necessary.

IX. MANGERIAL/ADMINISTRATIVE ANALYSIS

A. Organizaton:

9.01 With the formation of the Ministry of Electricity and Energy (MEE) in 1964, all individual electric generating facilities were consolidated into a single state - owned and controlled organization. The Egyptian Electricity Authority (EEA) is the operating authority for the MEE responsible for the planning, construction, operation and maintenance of the nations Unified Power System (UPS), the bulk power supply and transmission system.

9.02 EEA is organizationally divided into five administrative and five operational zones. EEA's Upper Egypt Zone (which includes the Aswan geographic area) has been effectively managing, for more than 20 years, the operation and maintenance of a complex system of generation and transmission facilities along the Nile River valley composed of: 2,825MW of installed generating capacity (three hydroelectric power stations with a total installed capacity of 2,715 MW, and two thermal power stations with a total installed capacity 110MW), 3,964 KM of transmission lines, (1,576 KM of transmission lines operating at 500KV, 164 KM of transmission lines operating at 220KV and 2,224 KM transmission lines operating at 132KV); and 5,517 MVA of transformer capacity (3280 MVA at 500KV, 225 MVA at 220KV and 2012 MVA at 132KV). The Upper Egypt Zone employes more than 7,700 Egyptians, of which 73 percent are technially trained to operate and maintain these facilities, eight percent have technical degrees and eight percent have administrative degrees. The remaining 11 percent are service employees.

B. EEA Project Management:

9.03 The large majority of the EEA staff, assigned to the High Dam Hydroelectric Power Station, have been assigned or associated with the station since the time of its construction in the early 1960's.

9.04 EEA has established a Project team in Aswan to manage the runner replacement. The team who report directly to the President of the Upper Egypt Zone, have authority to make day-to-day decisions and provide necessary approvals. EEA has also established a Project team in Cairo to manage the 500KV protective relay replacement. This team will report directly to the Deputy Chairman-Operations of EEA with authority to make day-to-day decisions and provide necessary approvals. We anticipate that EEA will establish new

teams or expand these existing teams who will report to the senior management of EEA and who will authorize to make decisions and provide approvals for day-to-day situations. Broader project issues are submitted to a High Committee for the High Dam chaired by the Deputy Chairman - Operations.

C. Operation and Maintenance of the Power Station:

9.05 The High Dam Hydroelectric Power Station is adequately staffed and trained to operate and maintain the plant. The rehabilitation of the plant will introduce new equipment and instrumentation which, while similar to the equipment and instrumentation being replaced, will require training in its operation and maintenance. This training will be provided in the United States and/or Egypt. The EEA staff has completed training programs on the replacement runners and governors. Training for the balance of equipment and instrumentation will be included in the respective contracts. EEA will be required through a covenant, to commence training on new equipment and instrumentation sufficiently in advance of its installation and check-out so that the EEA staff will be knowledgeable and can participate in the checkout and start-up of the new equipment and instrumentation.

9.06 Each contractors' start-up staff will be required to remain at the site for the duration of the start-up period until the replacement runners, relaying, circuit breakers and instrumentation has been accepted by EEA.

D. USAID:

9.07 The Power Systems Group within the Office of Urban Administration and Development, Development Resources Division (DR/UAD) has monitoring responsibilities for USAID. This Group has been and is responsible for implementation of this project and other projects in the electrical sector and has developed an excellant working relationship with EEA's Project Staff in Aswan and Cairo and with all levels of EEA senior management. The assigned personnel are experienced in the design, construction, operation and maintenance of electric power systems and the management and administration of electric utilities and should provide sufficient AID monitoring support for the project.

E. Conclusion.

9.08 EEA and the staff of the High Dam Hydroelctric Power Station already have many years of extensive and successful experience in the operation and maintenance of the hydroelectric station and 500KV transmission system in particular and in operation and maintenance of bulk power systems in general. This project is building on this expertise. In addition, EEA has demonstrated a capability to effectively manage and implement equally or more complex construction and rehabilitation projects. At the same time, the available DR/UAD staff is sufficient to provide the necessary AID monitoring support. Accordingly the project, as originally designed and now being amended, appears to be administratively sound.

X. RECOMMENDATIONS

A. Funding:

10.01 All Requirements (Conditions) Precedent and Covenants contained in the original Project Paper have been accepted by the GOE and incorporated into the Grant Agreement. Subject to the following additional Requirements Precedent, we recommend that AID's Grant to the GOE be increased from $100 million to $140 million, an increase of $40 million.

10.02 We further recommended that the Government of Egypt lend the funds to the Egyptian Electricity Authority.

10.03 Procurement of all goods and services financed by AID will have their source, origin and nationality in the United States.

B. Requirements Precedent to Disbursement:

10.04 We recommend that the project authorization include the following Requirements Precedent to disbursement:

a. Prior to disbursement of funds provided by the Second Amendment to the Grant Agreement, or to the issuance by A.I.D. of documentation pursuant to which funds shall be disbursed, the Grantee shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to AID:

i. Evidence that the proceeds of Second Amendment funds have been lent by the Grantee to the Egyptian Electricity Authority (EEA) on terms and conditions acceptable to the Grantee and EEA, and for the purpose of financing foreign exchange costs under the Project;

ii. Evidence that the additional local currency financing for the project, necessary to carry out the Second Amendment, has been budgeted by the Grantee and will be available for expenditure by EEA pursuant to a cost estimate made by the engineering advisor and approved by EEA; and

iii. Evidence that accounting records of local currency and in-kind contributions to the Project are being maintained by the EEA.

b. Prior to the disbursement of funds for individual construction contracts, or to the issuance by AID of documentation pursuant to which such funds shall be disbursed, the Grantee shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., a statement from the National Investment Bank or similar financial institution evidencing that the funds necessary for the local currency costs of the individual construction contract have been deposited in the Egyptian contracting party's account and are available for disbursement, such disbursement being the responsibility of the Egyptian contracting party.

10.05 We recommend that the terminal date for meeting the Requirements Precedent to Disbursement of funds provided by this Grant amendment be 60 days from the signing of the Grant Agreement Amendment.

C. Procurement Waivers:

10.06 We recommend the non-competitive selection of the United States Department of Interior, Bureau of Reclamation (BUREC) to provide additional engineering advisory services and that EEA be authorized to negotiate an amendment to the Memorandum of Understanding with the BUREC. OMB Circular A-76 Waiver document attached as Annex H.

D. Covenants:

10.07 We recommend that the following new Special Covenants be incorporated in the Grant Agreement Amendment:

(a) Training:

EEA will select operation and maintenance staff for training on the equipment being supplied under the Second Amendment. That training will commence sufficiently in advance of the equipment's installation and start-up, so that the trained personnel will be on-site, and fully qualified to operate and maintain the equipment, when it is in service.

(b) Payment of Salary Incentives and Supplements.

At the present time, the Project does not provide for salary supplement or incentives to employees of the Grantee out of Grant funds or Special Account funds. If, at some future time, the parties agree tha Grant proceeds or funds derived from the Special Account may be used to pay such supplements and incentives, such payments will be made only in accordance with muturally agreed guidelines.

(c) Local Currency and In-Kind Contributions:

The Grantee, through EEA, will provide to A.I.D., on a quarterly basis, with copies of its accounting records on local currency and in-kind contributions provided for the Project.

ARAB REPUBLIC OF EGYPT

MINISTRY OF PLANNING AND INTERNATIONAL COOPERATION

DEPARTMENT FOR ECONOMIC COOPERATION

WITH U.S.A

698

Aug. 31 , 1987

FYI
PPP
DD

Mr. Marshall D. Brown
Director
USAID / C

ACTION TO DR DIR
ACTION TAKEN 9/13
INFO DATE/TIME

Dear Mr. Brown:

Since the signing of the Grant Agreement in April 1982 which provided $ 100 million to assist in financing the rehabilitation and modernization of the High Dam, four of the twelve Francis turbine runners have been replaced. The first pair of the new runners have been in service for more than one year and the second pair of runners are presently being readied for service in August. As you are aware, the contract for the replacement of the protective relaying on the two 500KV transmission lines between Aswan and Cairo was recently signed.

During replacement of the turbine runners and investigation of the protective relay supporting systems, additional equipment rehabilitation and replacement requirements have been identified. In addition, we find it imperative to undertake a major reconditioning of the trash racks and intake and discharge gates and operating mechanisms. The gates are badly corroded and the sealing surfaces are worn to the extent that the gates no longer seal. As a result, it is necessary to continuously pump the water from the water passages, during periods of maintenance, to prevent flooding of portions of the station. There may even be a question regarding the reliability of the individual emergency gate operating mechanisms which lower the gates to interupt water flow, should a turbine governor fail.

The current estimate of the foreign exchange costs to complete the necesary rehabilitation and modernization of the High Dam Hydroelectric Power Station, including work on the gate system is $ 140 million. Grant Agreement No. 263-0160 provides $ 100 million thus resulting in a $ 40 million shortfall in the presently estimated foreign exchange requirement for the project.

In view of the foregoing, we request your favorable consideration and early approval of our request to amend the Grant Agreement to increase the foreign exchange funding for the project by $ 40 million. The Government of Egypt will provide all Egyptian Pound Requirements.

Best regards.

Sincerely yours,
Ahmad Abdel Salam
Ahmed Abdel Salam Zaki
Administrator.

SECOND AMENDMENT

TO

PROJECT AUTHORIZATION

Name of Country: Arab Republic of Egypt

Project Name: Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station.

Project Number: 263-0160

Pursuant to Part II, Chapter 4, Sections 532 of the Foreign Assistance Act of 1961, as amended, the Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station Project for the Arab Republic of Egypt was authorized on March 29, 1982, and that authorization was amended on February 5, 1986. That authorization, as amended, is hereby amended as follows:

1. The first two numbered paragraphs of the original project authorization and the first numbered paragraph of the first amendment to that project authorization are hereby deleted and the following is substituted therefore:

   "1. Pursuant to Part II, Chapter 4, Section 532 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station Project (the "Project") for the Arab Republic of Egypt ("the Cooperating Country").

The Project involves planned obligations of not to exceed One Hundred Fourty Million Dollars ($140,000,000) in grant funds over a ten year period from the date of initial authorization in 1982, to help in financing foreign exchange costs for the Project. The planned life of the Project from the date of initial obligation (April 12, 1982) is ten years."

"2. The Project consists of the supply and relacement of Francis turbine runners, 500KV circuit breakers, protective relaying on the two 500kV transmission lines between the High Dam Power Station and Cairo, control instrumentation and rehabilitation of the trash racks and emergency and maintenance gates on the intake and discharge tunnels associated with the twelve (12) Aswan High Dam hydro turbine generators and the necessary related technical assistance during manufacturing along with supervision during installation, testing and startup in Egypt."

2. Requirements Precedent to Disbursement of Second Amendment Funds:

Prior to disbursement of funds provided by the Second Amendment to the Grant Agreement, or to the issuance by A.I.D. of documentation pursuant to which such funds shall be disbursed, the Grantee shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D.:

(1) Evidence that the proceeds of Second Amendment funds have been lent by the Grantee to the Egyptian Electrical Authority (EEA), on terms and conditions acceptable to the Grantee and EEA, and for the purpose of financing foreign exchange costs under the Project;

(2) Evidence that the additional local currency financing for the Project, necessary to carry out the Second Amendment, has been budgeted by the Grantee and will be available for expenditure by EEA pursuant to a cost estimate made by the engineering advisor and approved by EEA; and

(3) Evidence that accounting records of local currency and in-kind contributions to the Project are being maintained by EEA.

3. Requirement Precedent to Disbursement for Individual Construction Contracts:

Prior to the disbursement of funds for individual construction contracts, or to the issuance by AID of documentation pursuant to which such funds shall be disbursed, the Grantee shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., a statement from the National Investment Bank or similar financial institution evidencing that the funds necessary for the local currency costs of the individual construction contract have been deposited in the Egyptian contracting party's account and are available for disbursement, such disbursement being the responsibility of the Egyptian contracting party.

These Requirements Precedent shall be fulfilled within sixty days from the execution of the Grant Agreement Amendment, unless otherwise agreed to by AID in writing.

4. Covenants:

(1) The following new Special Covenants, all to be honored except as A.I.D. may otherwise agree in writing are to be added under Article 5:

1. Training:

EEA will select operations and maintenance staff for training on the equipment being supplied under the Second Amendment. That training will commence sufficiently in advance of the equipment's installation and start-up, so that the trained personnel will be on-site, and fully qualified to operate and maintain the equipment, when it is in service.

2. Payment of Salary Incentives and Supplements.

At the present time, the Project does not provide for salary supplement or incentives to employees of the Grantee out of Grant funds or Special Account funds. If, at some future time, the parties agree tha Grant proceeds or funds derived from the Special Account may be used to pay such supplements and incentives, such payments will be made only in accordance with muturally agreed guidelines.

3. Local Currency and In-Kind Contributions:

The Grantee, through EEA, will provide A.I.D., on a quarterly basis, with copies of its accounting records on local currency and in-kind contributions provided for the Project.

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4. Waivers:

For puroses of implementation of the Project, a waiver of competition is hereby approved to permit AID funded non-competitive procurement by EEA of additional engineering advisory services from the BUREC.

Marshall D. Brown
Director,
USAID/Cairo

9/6/87
Date

Non-Competitive Review Board:

IS/CS:JDzierwa _____ Date 8/13/87
SLA:KO'Donnell _____ Date _____
IS/CMT:RRichardson _____ Date 8/12/87

Clrs:

OD/UAD: HHasan _____ Date 8/31/87
AD/DR: FZobrist _____ Date 8/__/87
AD/LEG: KO'Donnell _____ Date 8/12/87
AD/FM: WMiller _____ Date 9/2/87
AD/PPP: JPatterson _____ Date 9/4/87
DD:GLaudato _____ Date 9/14/87

CERTIFICATION PURSUANT TO SECTION 611 (e) OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

As Director and Prinipal Officer of the Agency for International Development in Egypt, having taken into account, among other things, the maintenance and utilization of projects in Egypt previously financed or assisted by the United States, I do hereby certify that in my judgement Egypt has both the financial capability and human resource capability to effectively maintain and utilize the capital assistance to be provided for the rehabilitation and modernization of the High Dam Hydroelectric Power Station in Aswan and associated facilities.

This judgement is based upon general considerations discussed in Section IX of the Project Paper to which this certification is attached.

Marshall D. Brown
Director

9/16/73
Date

5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A includes criteria applicable to all projects. Part B applies to projects funded from specific sources only: B(1) applies to all projects funded with Development Assistance; B(2) applies to projects funded from Development Assistance loans; and B(3) applies to projects funded from ESF.

CROSS REFERENCES:	IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM	Yes
	CHECKLIST BEEN REVIEWED FOR THIS PROJECT?	Yes

A. GENERAL CRITERIA FOR PROJECT

1.	FY 1987 Continuing Resolution Sec. 523; FAA Sec. 634A. Describe how authorization and appropriations committees of Senate and House have been or will be notified concerning the project.	Congress has been notified.
2.	FAA Sec. 611(a)(1). Prior to obligation in excess of $500,000, will there be (a) engineering, financial or other plans necessary to carry out the assistance, and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	The necessary planning and cost estimate have been completed.
3.	FAA Sec. 611(a)(2). If legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?	No further legislative action is required.
4.	FAA Sec. 611(b); FY 1987 Continuing Resolution Sec. 501. If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (See	N/A

5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and total U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?	The Mission Director has so certified. See Annex C.
6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.	The Project is not susceptable to execution as part of a regional project.
7. FAA Sec. 601(a). Information and conclusions on whether projects will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.	The grant will increase the flow of international trade and improve technical efficiency of industry, agriculture and commerce, and foster private initiative and competition. It will not have any apparent effect on encouraging cooperative credit unions and savings and loan associations, nor monopolistic practices, nor free labor unions.
8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).	All funds expended will be for goods and services from private U.S. concerns.
9. FAA Secs. 612(b), 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.	The Project Grant Agreement so provides and the GOE has certified that all local currency funds required will be provided by GOE.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?	No

11. FY 1987 Continuing Resolution Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? N/A

12. FY 1987 Continuing Resolution Sec. 558 (as interpreted by conference report). If assistance is for agricultural development activities (specifically, any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training), are such activities (a) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third country with exports of a similar commodity grown or produced in the United States, and can the activities reasonably be expected to cause substantial injury to U.S. exporters of a similar agricultural commodity; or (b) in support of research that is intended primarily to benefit U.S. producers? N/A

13. FY 1987 Continuing Resolution Sec. 559. Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U.S.-made components) be used directly to procure feasibility studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel? N/A

14. FAA Sec. 118(c). Does the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16? Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (a) stress the importance of conserving and sustainably managing forest resources; (b) support activities which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas; (c) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (d) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (e) help conserve forests which have not yet been degraded, by helping to increase production on lands already cleared or degraded; (f) conserve forested watersheds and rehabilitate those which have been deforested; (g) support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (h) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (i) conserve biological diversity in forest areas by supporting efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, and by helping to identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas; (j) seek to increase the awareness of

The assistance will comply with all requirements of Reg. 16. The assistance will not impact any way on forest resources.

U.S. government agencies and other donors of the immediate and long-term value of tropical forests; and (k) utilize the resources and abilities of all relevant U.S. government agencies?

15. FAA Sec. 119(g)(4)-(6). Will the assistance (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas? N/A

16. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate sysem for accounting for and controlling receipt and expenditure of project funds (either dollars or local currency generated therefrom)? N/A

17. FY 1987 Continuing Resolution Sec. 532. Is disbursement of the assistance conditioned solely on the basis of the policies of any multilateral institution? No

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Secs. 102(b), 111, 113, 281(a). Describe extent to which activity will (a) effectively involve the poor in development by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and N/A

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insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries.

b. FAA Secs. 103, 103A, 104, 105, 106, 120-21. Does the project fit the criteria for the source of funds (functional account) being used? N/A

c. FAA Sec. 107. Is emphasis placed on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)? N/A

d. FAA Secs. 110, 124(d). Will the recipient country provide at least 25 percent of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)? N/A

e. FAA Sec. 128(b). If the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or if it attempts to stimulate scientific and technological research, has it been designed and will it be monitored to ensure that the ultimate beneficiaries are the poor majority? N/A

f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government. N/A

g. FY 1987 Continuing Resolution Sec. 540. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions? N/A

Are any of the funds to be used to pay for the performance of involuntary sterilization as a method of family planning or to coerce or provide any financial incentive to any person to undergo sterilizations? N/A

Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning? N/A

h. FY 1987 Continuing Resolution. Is the assistance being made available to any organization or program which has been determined to support or participate in the management of a program of coercive abortion or involuntary sterilization? N/A

If assistance is from the population functional account, are any of the funds to be made available to voluntary family planning projects which do not offer, either directly or through referral to or information about access to, a broad range of family planning methods and services? N/A

i. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? N/A

j. FY 1987 Continuing Resolution. How much of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, and private and voluntary organizations which are controlled by individuals who are black Americans, Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)? N/A

k. FAA Sec. 118(c)(13). If the assistance will support a program or project significantly affecting tropical forests (including projects involving the planting of exotic plant species), will the program or project (a) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land, and (b) take full account of the environmental impacts of the proposed activities on biological diversity? N/A

l. FAA Sec. 118(c)(14). Will assistance be used for (a) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; or (b) actions which significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas? N/A

m. FAA Sec. 118(c)(15). Will assistance be used for (a) activities which would result in the conversion of forest lands to the rearing of livestock; (b) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undegraded forest lands; (c) the colonization of forest lands; or (d) the construction of dams or other water N/A

control structures which flood relatively undegraded forest lands, unless with respect to each such activity an environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development?

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan at a reasonable rate of interest. N/A

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20 percent of the enterprise's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest? N/A

c. FY 1987 Continuing Resolution. If for a loan to a private sector institution from funds made available to carry out the provisions of FAA Sections 103 through 106, will loan be provided, to the maximum extent practicable, at or near the prevailing interest rate paid on Treasury obligations of similar maturity at the time of obligating such funds? N/A

d. FAA Sec. 122(b). Does the activity give reasonable promise of assisting long-range plans and programs designed to develop economic resources and increase productive capacities? N/A

3. Economic Support Fund Project Criteria

a. FAA Sec. 531(a). Will this assistance promote economic and political stability? To the maximum extent feasible, is this assistance consistent with the policy directions, purposes, and programs of Part I of the FAA?	Will enhance ability of GOE to sustain economic growth and recovery which will have positiv political results. To the exter rural areas will be served, poli direction of Section 102 will be reflected.
b. FAA Sec. 531(e). Will this assistance be used for military or paramilitary purposes?	No
c. ISDCA of 1985 Sec. 207. Will ESF funds be used to finance the construction, operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such country is a party to the Treaty on the Non-Proliferation of Nuclear Weapons or the Treaty for the Prohibition of Nuclear Weapons in Latin America (the "Treaty of Tlatelolco"), cooperates fully with the IAEA, and pursues nonproliferation policies consistent with those of the United States?	No N/A
d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?	N/A

5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. PROCUREMENT

1.	FAA Sec. 602(a). Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed?	Yes
2.	FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him?	Yes
3.	FAA Sec. 604(d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company?	Egypt does not so discriminate.
4.	FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a). If non-U.S. procurement of agricultural commodity or product thereof is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)	There will be no such procureme
5.	FAA Sec. 604(g). Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those	No

countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.)

6. FAA Sec. 603. Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates? — No

7. FAA Sec. 621(a). If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? will the facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs? — Project Paper and P.P. Amendment No. 1 provide full justification for the utilization of the U.S. Department of the Interior, Bureau of Reclamation.

8. International Air Transportation Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available? — Yes

9. FY 1987 Continuing Resolution Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States? — No U.S. Direct Hire contract is contemplated.

10. FY 1987 Continuing Resolution Sec. 524. If assistance is for consulting service through procurement contract pursuant to 5 U.S.C. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)? — N/A

B. CONSTRUCTION

1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services be used? — Yes

2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? — Sole source waiver approved by AID Administrator for turnkey design, supply, installation of Francis runner All other contracts to be completed.

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed $100 million (except for productive enterprises in Egypt that were described in the CP), or does assistance have the express approval of Congress? — No, but FAA Section 620(k) provides exception for Egypt.

C. OTHER RESTRICTIONS

1. FAA Sec. 122(b). If development loan repayable in dollars, is interest rate at least 2 percent per annum during a grace period which is not to exceed ten years, and at least 3 percent per annum thereafter? — N/A

2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? — N/A

3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? — Commingling determination, based upon Mission and American Embassy recommendations that this activity is in the best interests of the United States, was made by AID Administrator in approving original authorization in 1982.

4. Will arrangements preclude use of financing:

a. FAA Sec. 104(f); FY 1987 Continuing Resolution Secs. 525, 540. (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; or (4) to lobby for abortion?

1. Yes
2. Yes
3. Yes
4. Yes

b. FAA Sec. 483. To make reimburse-bursements, in the form of cash payments, to persons whose illicit drug crops are eradicated?

Yes

c. FAA Sec. 620(q). To compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President?

Yes

d. FAA Sec. 660. To provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?

Yes

e. FAA Sec. 662. For CIA activities?

Yes

f. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained?

Yes

g. FY 1987 Continuing Resolution Sec. 503. To pay pensions, annuities, retirement pay, or adjusted service compensation for military personnel?

Yes

h. FY 1987 Continuing Resolution Sec. 505. To pay U.N. assessments, arrearages or dues? Yes

i. FY 1987 Continuing Resolution Sec. 506. To carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)? Yes

j. FY 1987 Continuing Resolution Sec. 510. To finance the export of nuclear equipment, fuel, or technology? Yes

k. FY 1987 Continuing Resolution Sec. 511. For the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights? Yes

l. FY 1986 Continuing Resolution Sec. 516. To be used for publicity or propaganda purposes within U.S. not authorized by Congress? Yes

ACTION MEMORANDUM FOR THE ADMINISTRATOR 24 MAR 1982

THRU: ES

THRU: AA/PPC, Mr. John R. Bolton John R Bolton

FROM: AA/NE, W. Antoinette Ford

PROBLEM: Your approval is required for a grant of $100.0 million to the Government of Egypt for the Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station Project (263-0160).

DISCUSSION: The Government of Egypt (GOE) has requested this grant to finance the foreign exchange costs associated with the rehabilitation and modernization of the Aswan High Dam Hydroelectric Power Station. Of the $100.0 million grant, $85.0 million will be obligated in FY 1982 and the balance of $15.0 million in FY 1983. The project includes (1) replacement of 12 Francis runner turbines and their associated equipment under a turnkey contract, (2) replacement of a number of high voltage circuit breakers, differential relays, and control instrumentation, and (3) engineering technical services to monitor the performance of the turnkey contractor, to develop the bid specifications of item (2) above, and to provide procurement and monitoring assistance as required by the Egyptian Electricity Authority (EEA).

The Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station has its origin with a request from the GOE to A.I.D. to finance the replacement of critical components of the Russian built turbines in Egypt's Aswan High Dam. The critical components to be replaced are the Francis runners, the principal structures holding the turbine blades in each of the dam's twelve turbines. Cracks began appearing in the Russian turbine runners soon after the power plant commenced operations in 1967. Since then, the number and severity of the cracks have been steadily increasing, despite Egyptian efforts to correct the problem with a regular program of welding repairs. The Egyptians and independent experts have concluded that the only solution is to replace the damaged Russian turbines with new ones of improved structural design and efficiency. A team of United States Bureau of Reclamation technical specialists visited the Aswan Power Station in August 1981, confirmed the growing risk of failure of the runners, and recommended replacement as quickly as possible.

The total cost of the project is $124.0 million, of which the foreign exchange component is estimated at $100.0 million. The supplier's

initial estimate of $53.4 million for the design and supply of the twelve Francis runners did not include the cost of transport up the Nile or the removal of the original generators and turbine runners along with the reinstallation of the generators and the new redesigned Francis runners.

It was contemplated that these items would be the responsibility of the EEA and financed by the GOE. However, during the course of contract negotiations, the EEA concluded it did not have the experience to disassemble and reassemble the equipment at the Dam and determined the contractor should undertake all these responsiblilities. This decision substantially increased the burden for the contractor in terms of equipment, manpower, and technical responsibility. In addition, the EEA added ancillary equipment associated with the runner replacement and engineering technical services which increased the overall costs of the project.

SOLE SOURCE PROCUREMENT: On October 18, 1981, you approved in principle, sole source procurement of the Francis runners for the Allis-Chalmers Corporation as the only U.S. firm capable of performing all elements of the design/model test/fabrication/replacement process. This approval in principle which is attached as Annex R of the Project Paper, was subject to a subsequent confirmation of price reasonableness. Since then, the U.S. Bureau of Reclamation has reviewed the Allis-Chalmers price proposal and certified its reasonableness. Allis-Chalmers has completed contract negotiations with the EEA negotiating committee and the contract has been forwarded to the High Purchase Committee for final GOE approval. Once the Project is authorized and the Project Agreement signed with the GOE, A.I.D. will be called upon to review and approve the final contract between the EEA and Allis-Chalmers.

COMMINGLING: By signing the project authorization you will also be making an affirmative determination for commingling foreign assistance funds to support a project which hitherto has been primarily identified with the Communist bloc . The A.I.D. Handbook regulations which implement Section 620(h) of the Foreign Assistance Act require the Administrator to make a determination that such assistance will not be contrary to the interests of the United States in the event that an A.I.D. project promotes or assists a bloc project.

The Project Paper at page 51 Section X, entitled RECOMMENDATIONS, CONDITIONS AND COVENANTS, expresses the views of the Ambassador and the A.I.D. Mission that assistance to this important project will not only be supportive of the economic and political relationship between the United States and Egypt and political stability within Egypt, but also will significantly enhance Egypt's ability to promote its critical long range economic development.

66

Accordingly, it is believed that, although the assistance furnished will assist a project originally started by and identified with a communist bloc country, such assistance will be in the best interests of the United States. Your signature authorizing the Project will signify your determination that this assistance will not be contrary to the best interests of the United States.

PASS THROUGH OF FUNDS BETWEEN THE GOVERNMENT OF EGYPT AND THE EEA: Primarily because the EEA has not been able to increase electric power rates, it has difficulty maintaining a reasonable debt/equity ratio. The Mission has proposed that the A.I.D. funds be passed on as a grant to the EEA as a means of improving EEA's weak capital structure. The Mission and the Embassy have also indicated their conviction that the EEA's decision to seek A.I.D. financing rather than go to international bidding was based on an understanding that they would receive the funds in the form of a grant. It is recommended, therefore, that in authorizing this agreement with the GOE, you approve passing the A.I.D. funds on as a grant to the EEA as a contribution to EEA's equity capital.

PARTICIPATING AGENCY SERVICE AGREEMENT: The EEA has requested that the U.S. Bureau of Reclamation perform the services of Systems Engineer under a PASA arrangement to be financed by A.I.D. as part of the project. By signing the project authorization you will be approving this arrangement. The recommended PASA arrangement is consistent with the criteria set forth in A.I.D. Handbook 1B, Ch 12, Sec. 1B2 by reflecting the unique qualifications of the Bureau of Reclamation (BUREC) to assist the EEA as the Engineering Advisor for the activity. BUREC: (1) possesses extensive experience in all engineering aspects of hydroelectric power generating stations (e.g. Grand Coulee Dam, 6,263 megawatts), (2) maintains experienced inspectors near the manufacturing sites and thus is in a position to monitor the manufacturing processes employed by Allis-Chalmers, and (3) has in-depth familiarity with national and international standards, practices and procedures for the design, manufacture and testing of hydroelectric power station equipment and has a proven capability to act as the contract administrator during implementation of the project. The BUREC performed a vital role in identifying problem areas at the High Dam and has established good working relationships with EEA personnel, a factor of great significance in carrying out this complex activity. Given the key BUREC role in the formulation, design review and pricing of this activity, and its proven qualifications in carrying out the necessary engineering advisory function to and for the EEA, BUREC is viewed as a unique source for the comprehensive technical services and skills required for this activity. BUREC would not be competing with private enterprise in carrying out its contemplated role since there is at present no U.S. private sector

supplier capable of performing the comprehensive functions required under this activity.

Initial grant funds for the Project will be provided from FY 1982 Economic Support Funds for Egypt.

The Project Paper was reviewed and approval recommended by the Near East Advisory Committee on February 9, 1982.

The Congress was notified on February 25, 1982 of A.I.D.'s intent to obligate $85 million of the Grant in FY 1982. The waiting period expired COB March 11, 1982 without objection.

There are no recent current human rights issues under section 502 B of the FAA that would preclude provision of this assistance to Egypt.

The Project Paper is attached for your information.

RECOMMENDATION: That you approve the authorization of a $100 million grant with an FY 1982 obligation of $85 million by signing the attached authorization.

Attachments:
1. Authorization (Tab A)
2. Project Paper (Tab B)

DRAFT:NE/PD/ENGR:AHotvedt:trt:3/8/82:3/15/82:3/19/82:X27327

K. C. Kammerer, GC _____ DATE 3/26/82

J.Eriksson, AA/PPC/PDPR _____ DATE 3/26/82

PROJECT AUTHORIZATION

Name of Country: Arab Republic of Egypt

Name of Project: Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station

Number of Project: 263-0160

1. Pursuant to Part II, Chapter 4, Section 532 of the Foreign Assistance Act of 1961, as amended (The Act), I hereby authorize the Rehabilitation and Modernization of the Aswan High Dam Hydroelectric Power Station Project for the Arab Republic of Egypt (the cooperating country) involving planned obligations of an amount not to exceed $100 million in grant funds over a three-year period from date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing the foreign exchange costs for the Project.

2. The Project consists of the supply and replacement of Francis turbine runners, 500KV and 132KV circuit breakers, differential relaying and control instrumentation associated with the twelve (12) Aswan High Dam hydro turbine generators and the necessary related technical assistance during manufacturing along with supervision during installation, and testing and startup in Egypt.

3. The Project Agreement which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and delegations of authority shall be subject to the following essential terms, covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

4. a. Source and Origin of Goods and Services

Goods and services, except for ocean shipping, financed by A.I.D. under the project shall have their source and origin in the United States, except as A.I.D. may otherwise agree in writing.

Ocean shipping financed by A.I.D. under the Project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United States.

b. Conditions Precedent to Disbursement

Prior to the first disbursement under the Grant or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the GOE shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

1. An opinion of the Minister of Justice or of other counsel acceptable to A.I.D. that this Grant Agreement has been duly authorized and/or ratified by, and executed on behalf of the Grantee in accordance with all its terms.

2. A statement of the names of the persons authorized to represent the Grantee and the Egyptian Electricity Authority (E.E.A.) and a specimen signature of each person.

3. An acceptable contract for engineering services for the Project with an organization acceptable to A.I.D.

4. An acceptable contract, with Allis Chalmers, for the turnkey provision of 12 Francis runners.

5. Evidence that local currency financing for the Project has been budgeted by the Grantee and will be available for expenditure by EEA on the Project pursuant to a cost estimate made by the engineering advisor and approved by EEA.

c. Covenants

The GOE will be required to covenant as follows:

1. The Grantee and EEA shall cooperate fully with A.I.D. to assure that the purpose of the Grant will be accomplished. To this end, they shall from time to time, at the request of either party, exchange views through their representatives with regard to the progress of the Project, the performance by the EEA of its obligations under this Agreement, the performance of the consultants, contractors and suppliers engaged on the Project, and other matters relating to the Project.

2. The EEA shall provide qualified and experienced management for the Project, and it should train such staff as may be appropriate for the maintenance and operation of the Project.

3. The Parties agree to establish an evaluation program as part of the Project. Except as the Parties otherwise agree in writing, the program will include during the implementation of the Project and at one or more points thereafter: (a) evaluation of progress toward attainment of the objectives of the Project; (b) identification and evaluation of problem areas or constraints which may inhibit such attainment; (c) assessment of how such information may be used to help overcome such problems; and (d) evaluation, to the degree feasible, of the overall development impact of the Project.

4. The high and medium/low voltage tariff studies presently underway will form the basis for implementing major changes in electricity tariffs. A.I.D. will be provided copies of the studies and will consult with the GOE as to the adequacy of recommendations before implementation begins.

5. Any interim changes in fuel prices will be broadly distributed and not exclude EEA.

6. Until the Parties agree that a comprehensive tariff structure can be implemented, the Grantee shall ensure that a minimum yearly rate of return for EEA will be established in consultation with A.I.D. For the year 1982, the Grantee agrees to allow EEA to take the necessary action to achieve such a rate of return on net revalued assets as is acceptable to the World Bank under its existing assistance agreements.

7. The Grantee shall ensure that the proceeds made available under the Grant will be made available to the EEA as a grant contribution to its equity capital.

Administrator

29 MAR 1982
Date

Clearance:
AA/NE: M. Antoinette Ford — Date 24 MAR 1982
A-GC: Kelly C. Kammerer — Date 3/26/82
AA/PPC: John R. Bolton — Date 3/26/82

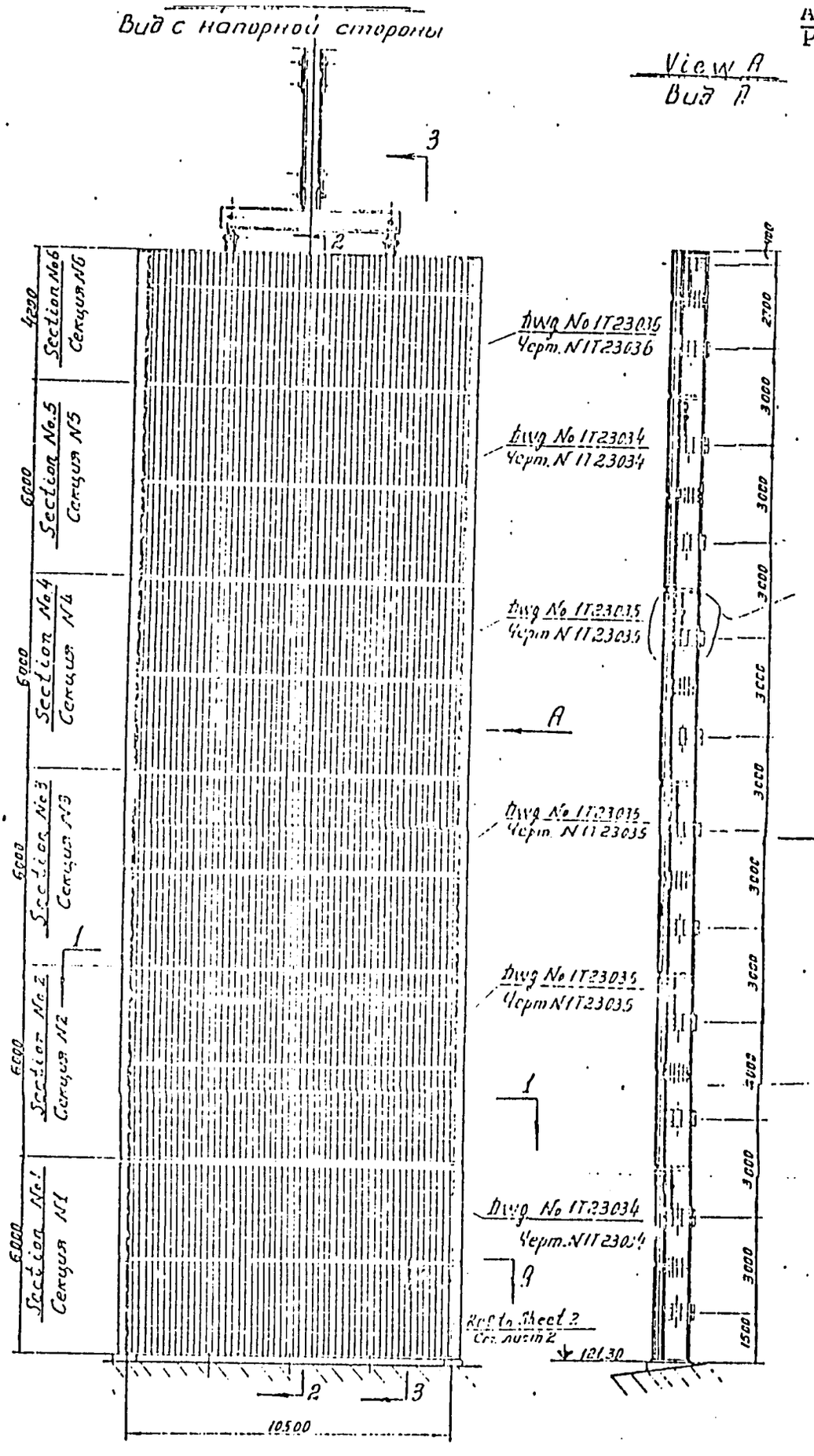
ANNEX F

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 82 to FY 92
Total U S Funding $140 million
Date Prepared: 7/14/87

Project Title & Number: HIGH DAM REHABILITATION/MODERNIZATION - 263-0160

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: (A-1) 1. Provide reliable energy for continued industrial, commercial & residential expansion and economic growth. 2. Improvement of rural and urban living conditions.	Measures of Goal Achievement: (A-2) 1. Increased industrial sector GDP. 2. Increased industial employment.	(A-3) 1. Government of Egypt statistical data. 2. EEA Annual Reports. 3. EEA Monthly Operating Reports. 4. EEA Plant Operating Reports.	Assumptions for achieving goal targets: (A-4) 1. The policies and actions of the Egyptian Government concerning fiscal and monetary policy, prices and debt management that will foster continued gorvth. 2. The GOE will continue to move electricity and fuel pricing toward unsubsidized price levels.
Project Purpose: (B-1) To provide improved reliability and economy of operation of the Aswan High Dam Hydroelectric Power Station and 500 KV transmission system.	Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2) 1. Absence of runner cracking. 2. Increase turbine efficiency. 3. Faster protective relay-circuit breaker operation for short-circuits. 4. Accurate logging and presentation of operating data. 5. Gates seal properly to prevent leakage. 6. Plant staff training to operate and maintain new equipment.	(B-3) 1. Provisional acceptance certificates issued. 2. Examination and inspection of the equipment during warranty period and routine maintenance outages. 3. Executed Taking Over Acceptance certificates. 4. Executed Final Certificates.	Assumptions for achieving purpose: (B-4) That turbine runners can be manufactured and installed in existing turbines and operated without appearance of cracking. Modern circuit breakers, relays & control instrumentation is available with long term spare parts.
Project Outputs: (C-1) Replacement of Francis turbine runners, rehabilitation of hydroelectric turbine generators water passages, trash rocks and gates, replacement of circuit breakers, relays and control instrumentation.	Magnitude of Outputs: (C-2) Runner Model Test - October 1982 First 2 Runners replaced - May 1986 Second 2 Runner replaced - Aug 1987 Runner Replacement completed -Dec 1991 Relay contract signed - May 1987 Relay Installation completed -May 1990 Curcuit Breaker contract signed - January 1989 Instrument contract signed - March 1989 All goods and services completed - April 1992	(C-3) 1. Review of contracts. 2. Contractor reports. 3. BUREC monthly reports. 4. Review of disbursements made upon shipment of equipment. 5. Inspection and examination of project sites	Assumptions for achieving outputs: (C-4) 1. That the Aswan High Dam Power Station facilities will be made available to US contractors for necessary inspection & equipment replacments. 2. That GOE will provide all local currency required to carry out the project.
Project Inputs: (D-1) 1. Contract for engineering advisor services for project implementation. 2. Turnkey supply and installation contract for turbine runners. 3. Turnkey contracts for supply of circuit breakers, relays and control instrumentation. 4. Turnkey contract for rehabilitation of trash rocks and gates.	Implementation Target (Type and Quantity) (D-2) Commodities 12-Francis Runners 10-500 KV Circuit Breakers Primary and Secondary Relaying on 500 KV transmission lines Data loggers and replacement Training 87 person-months Technical Advisory Services PASA agreement with BUREC Budget Technical Advisory Services $ 7.8 million Commodities $131.5 " Training $ 0.7 " TOTAL $140.0 million	(D-3) 1. Contract review. 2. Reviewing factory inspection and shipping reports for equipment and material. 3. Installation schedules of equipment. 4. Progress Reports. 5. Visual Inspection. 6. Evaluation and Project Completion Reports.	Assumptions for providing inputs: (D-4) 1. That US dectrical equipment manufacturers will bid for ancilary equipment contracts. 2. That local Egyptian firms will be available for installation contracts. 3. Requirement Precedent to disbursement will be met on schedule.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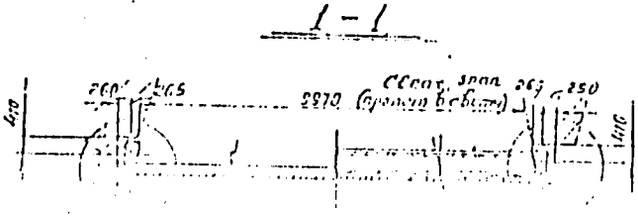
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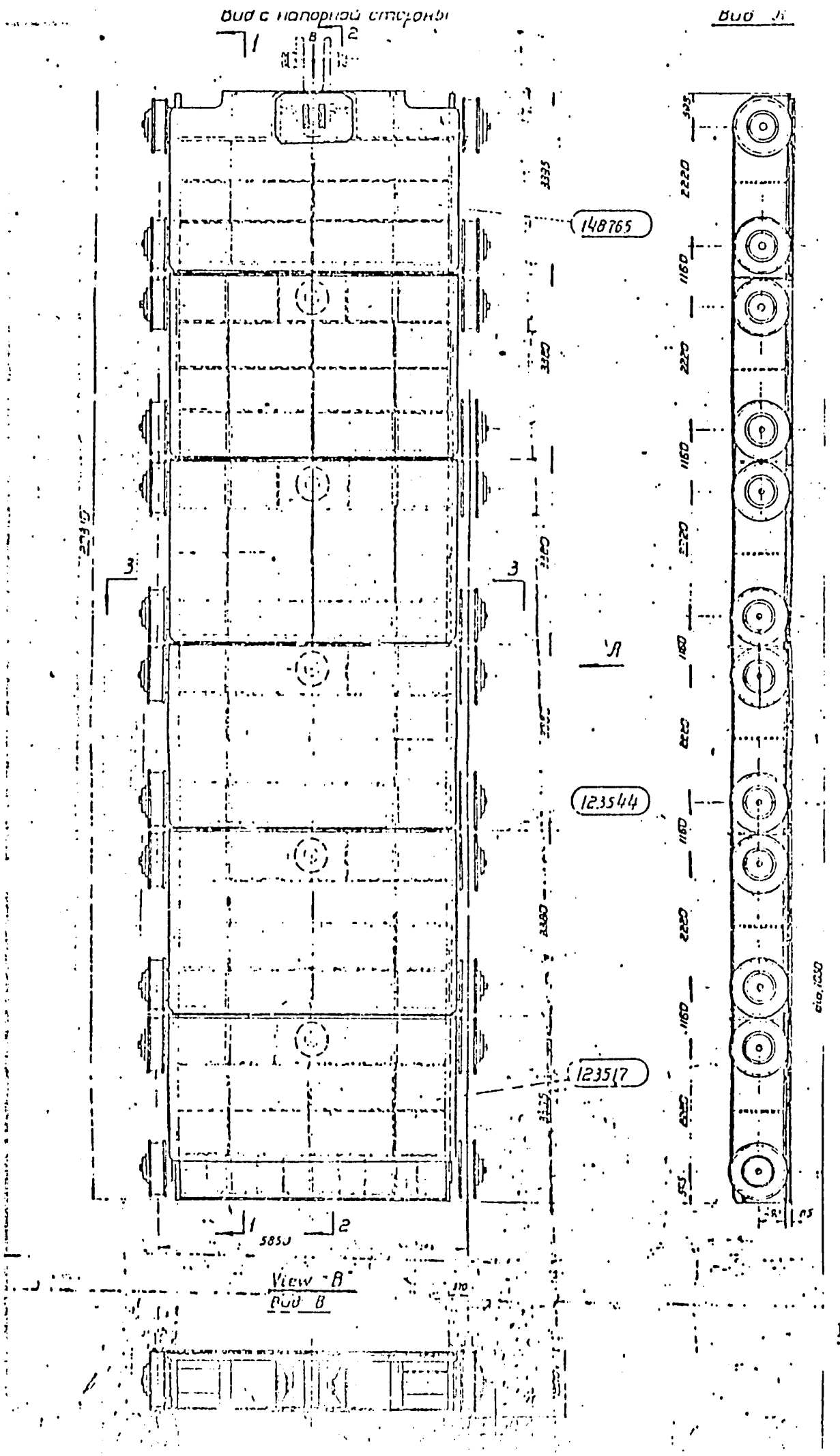
TRASH RACKS



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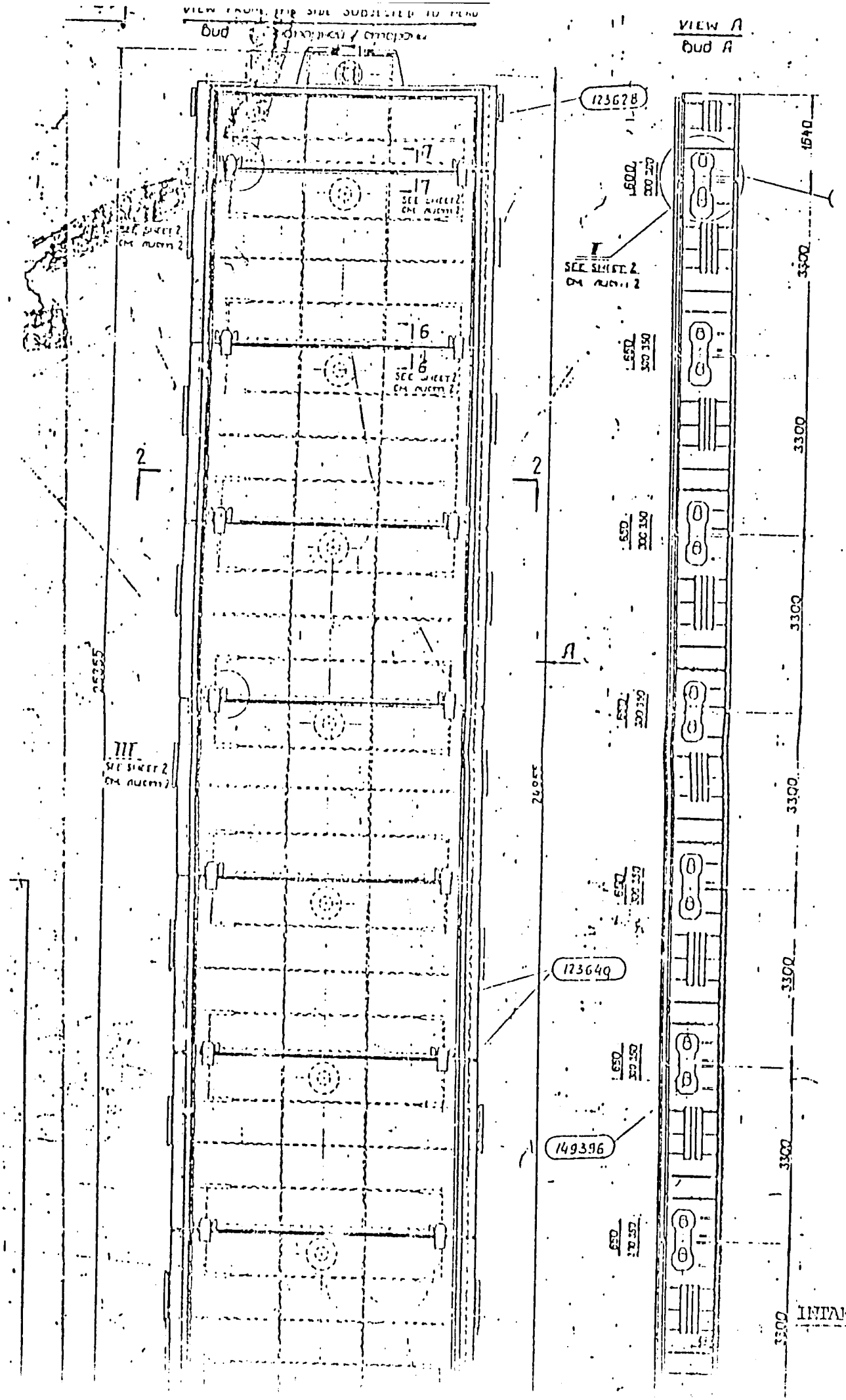
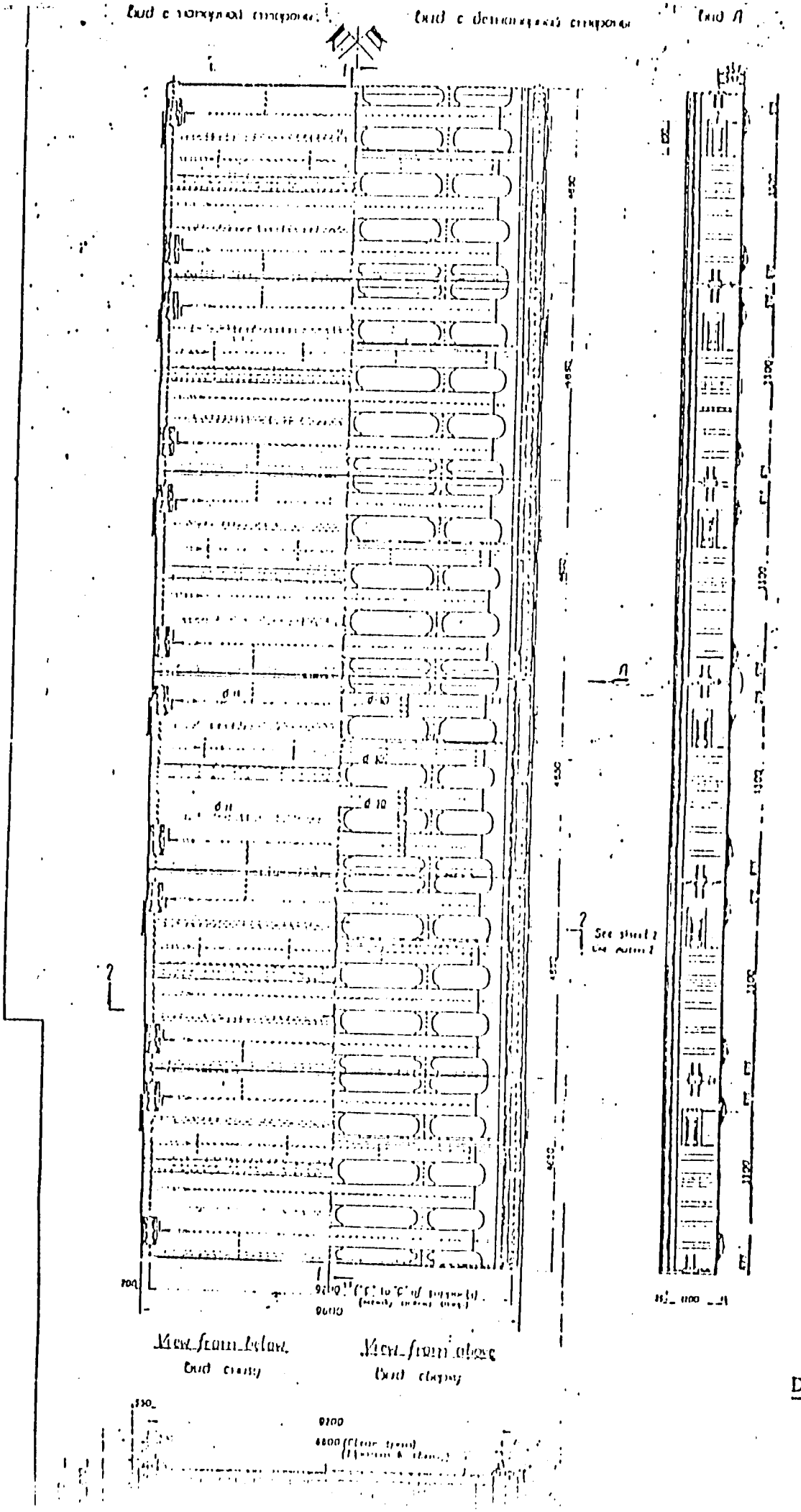


INTAKE MAINTENANCE GAT



DISCHARGE MAINTENANCE GATE

EXEMPTION FROM OMB CIRCULAR A-76 REQUIREMENT

REHABILITATION AND MODERNIZATION OF THE

ASWAN HIGH DAM HYDROELECTRIC POWER STATION

The PASA and amendments are exempt from OMB Circular A-76 procedures since the PASA is for the provision of technical assistance by the Department of Interior, Bureau of Reclamation who are uniquely suited for providing such assistance. No other single private enterprise can provide the full range of technical assistance necessary for this project.

Marshall D. Brown
Director,
USAID/Cairo

6/16/87
Date